2008

Linear Accelerator Conference

September 29 – October 3, 2008
Victoria Conference Centre
Victoria, BC Canada

www.triumf.ca/linac08

The LINAC08 Organizing Committee, Scientific Program Committee and Local Organizing Committee would like to acknowledge and thank the following for their sponsorship and support:

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Contents

Welcome!

It is my pleasure, on behalf of TRIUMF and the LINAC08 organizing committees, to welcome each of you to the XXIV International LINAC Accelerator Conference in Victoria. This conference series provides a unique opportunity for specialists from around the world to interact professionally and culturally in a relaxed and inspirational atmosphere.

Your positive responses to our requests for registration, papers, presentations, sponsorships and exhibitors indicate to me the vitality of the LINAC community. There is a healthy, balanced representation from Asia, North America and Europe in both registration and papers. This large registration, along with the generous support of LINAC06 and our LINAC08 sponsors, has allowed us to support a significant number of young researchers from all three regions. The young researchers attending this meeting should be very encouraged by the future prospects of their chosen career field.

The scientific programme promises to be intellectually stimulating, while the cultural programme will introduce you to west coast food, history and scenery. We encourage you to take time to enjoy the many other opportunities that the Victoria area offers for relaxation and cultural stimulation.

Thank you for participating in LINAC08.

Paul W. Schmor
Chairman,
LINAC08 Conference Chair

Key Contacts

Paul W. Schmor, Conference Chair
Robert Laxdal, Program Chair
Amiya Mitra, Local Organizing Committee Chair
Sandi Miller, Conference Coordinator

Emergency Phone Numbers

There are two phone numbers that can be used if someone needs to reach you in an emergency.

Conference Office: 1-250-361-1023
Registration Desk: 1-250-361-1020

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Marion White, ANL, USA
Yoshishige Yamazaki, J-PARC, Japan

Venue
Victoria Conference Centre
720 Douglas Street
Victoria, BC V8W 3M7
Canada
1-866-540-4429
1-250-361-1000

Conference Hotel
Fairmont Empress Hotel
721 Government Street
Victoria, BC V8W 1W5
Canada
1-866-540-4429
1-250-384-8111

Emergency Information

Hotel and Conference Centre internal emergency numbers. (Can be dialed from house phones within the respective buildings.)

Fairmont Empress	57
Victoria Conference Centre	1011

Medical Clinics and Hospitals:

Integrated Health Clinic 250-308-4211
Mon–Fri 08:30 – 20:00
1139 Yates Street
Sun 10:00 – 16:00

Downtown Medical Clinic 250-380-2210
622 Courtney Street
Mon–Fri 08:30 – 17:00

People's Drug Mart 250-381-2999
715 Douglas St. (across the street, east, from the Victoria Conference Centre)
Mon–Fri 09:00 – 18:00

Royal Jubilee Hospital 250-370-8000
1952 Bay Street

Copy Services

Copy Plus Centre 250-386-3333
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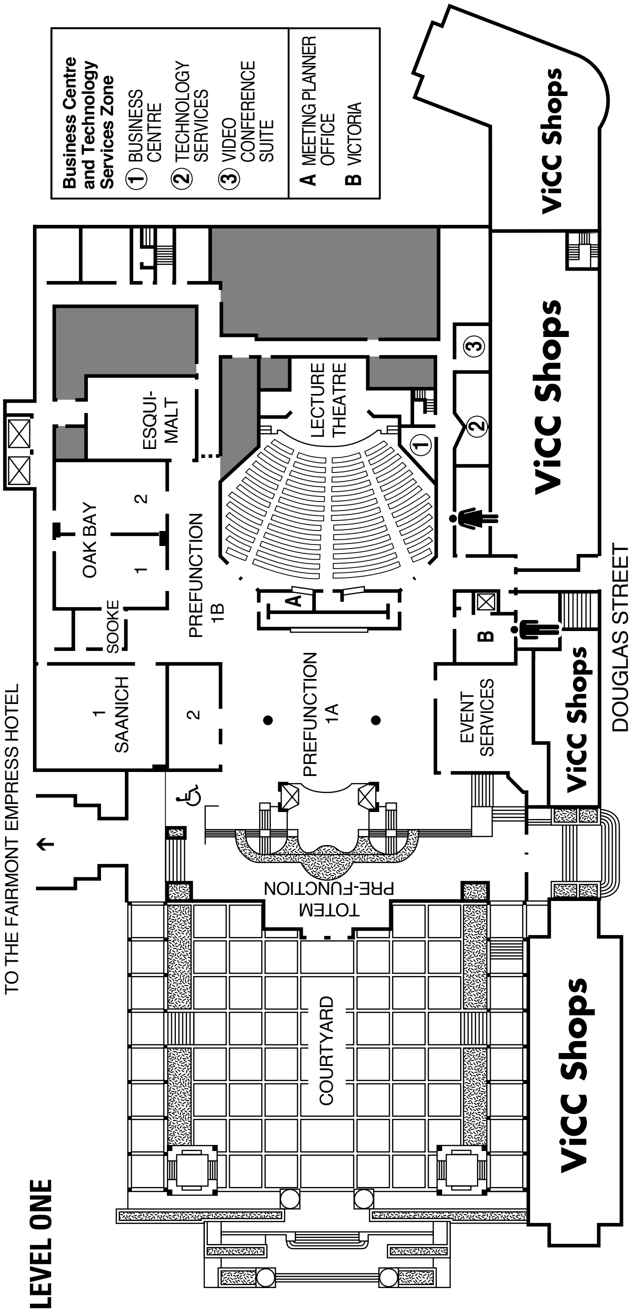
LEVEL ONE
TO THE FAIRMONT EMPRESS HOTEL
Business Centre and Technology Services Zone
1 BUSINESS CENTRE
2 TECHNOLOGY SERVICES
3 VIDEO CONFERENCE SUITE
A MEETING PLANNER OFFICE
B VICTORIA
ESQUI-MALT
OAK BAY
1
2
SOOKE
PREFUNCTION 1B
LECTURE THEATRE
A
B
SAANICH
1
2
PREFUNCTION 1A
EVENT SERVICES
TOTEM PRE-FUNCTION
COURTYARD
ViCC Shops
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ViCC Shops
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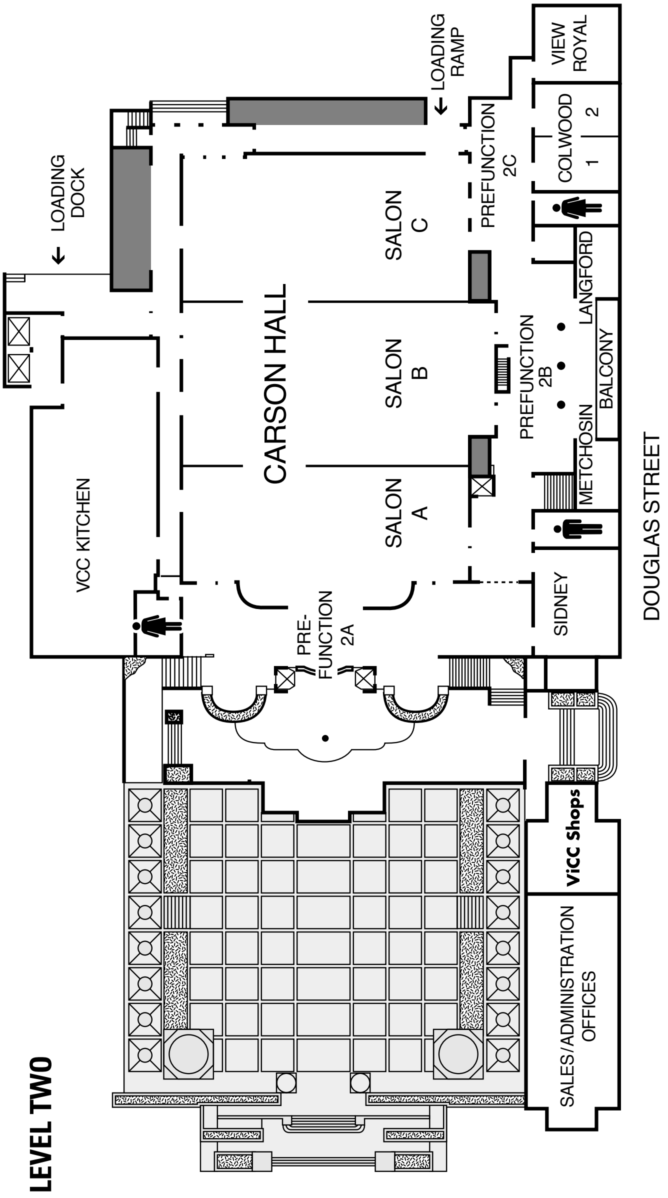
DOUGLAS STREET


LEVEL TWO
LOADING DOCK
LOADING RAMP
VCC KITCHEN
CARSON HALL
SALON A
SALON B
SALON C
PRE-FUNCTION 2A
PREFUNCTION 2B
PREFUNCTION 2C
VIEW ROYAL
COLWOOD 1 2
LANGFORD
BALCONY
METCHOSIN
SIDNEY
DOUGLAS STREET
ViCC Shops
SALES/ADMINISTRATION OFFICES

REGISTRATION

The registration desk is on Level 1 of the Victoria Conference Centre, and will be open at the following times:

Sunday, September 28	15:00 to 19:00
Monday, September 29	07:00 to 17:30
Tuesday, September 30	08:00 to 17:30
Wednesday, October 1	08:00 to 13:30
Thursday, October 2	08:00 to 17:30
Friday, October 3	08:00 to 12:30

Your registration fee includes attendance at all technical sessions of the conference, the conference guidebook, and one copy of the proceedings on CD-ROM.

Extra Tickets

Individual tickets for the Welcome Reception, Museum Reception, Excursion, Banquet, and TRIUMF Tour are limited. If there are any tickets left, they will be available at Registration.

Cancellation of Registration

All cancellations must be provided in writing to linac08@triumf.ca. No refunds will be provided for cancellations after August 31, 2008. This policy also applies to extra tickets for excursions and social functions. Refunds may be granted for no-shows under extenuating circumstances.

Message Board

A message board is located beside the registration desk.

Security and Insurance

Participants are asked not to leave their belongings unattended and to wear their conference badges at all LINAC08-sponsored events. The conference organizers cannot accept liability for personal injuries sustained or for loss or damage to participants' (or companions') personal property during the conference.

Luggage Storage (Friday Only):

Sooke Room

Summary of Events

Sunday	Student Poster Session Welcome Reception
Monday	Companion Bus Tour
Wednesday	Excursion – Whale watching or Butchart Gardens
Wednesday (19:00)	Reception at the Royal BC Museum
Thursday	Banquet at the Fairmont Empress
Saturday	TRIUMF Tour (not included in registration fee)

Special and Social Events

Sunday, Sept. 28

Student Poster Session *[17:00]*
Welcome Reception *[17:00]*

A welcome reception will be held at the Victoria Conference Centre. All registrants are invited to attend.

Monday, Sept. 29 *[09:00]*

Companion City Tour

For those companions who signed up for the Monday morning coffee and bus tour, coffee will be set up in the foyer by Registration at 09:00. The tour bus will meet you outside of the Victoria Conference Centre, on Douglas Street, at 09:30 for a 90-minute tour of one of Canada's most beautiful cities.
This narrated tour will show you the famous landmarks of the city and explain the fascinating history behind them. Discover Victoria's lovely gardens, homes, and historic points of interest.

- Exotic Chinatown
- Historic Antique Row
- Victoria's Inner Harbour
- Scenic view of Mount Baker and the San Juan Islands

Bring your camera and a sweater in case the breeze is blowing.

Wednesday, October 1 *[13:30]*

Whale watching

Representatives from Springtide Charters will meet us at the Victoria Conference Centre at 13:30. Please make sure you go to the bathroom BEFORE leaving the Conference Centre, as the facilities on the dock are small and can delay the departure of the boats.
For the open boats group waivers will be posted on Sunday on the message board beside registration for you to assign yourself to a boat (they will stay up until Tuesday morning, after the coffee break). This will give you a chance to go with your friends/family in the same boat. Everyone must sign the waiver before going in the zodiacs. The age limit for the zodiacs is 7 and up.
For the closed boat, we will provide Springtide with a list of those who signed up, which they will use as a manifest to check people in as they board. There is no age limit for the closed boat - everyone can go on this boat, from babies to seniors.

Butchart Gardens

The bus for the Butchart Garden excursion will meet you outside the Victoria Conference Center at 13:30.

Wednesday, October 1 *[19:00]*

Royal BC Museum Reception

We are excited to offer you a unique dining experience while exploring the Royal BC Museum. The entire 3rd floor of the museum will be yours to explore throughout the evening, as themed food stations take you on a culinary journey through BC's dynamic history.
Entrance to the Royal BC Museum will be granted after 18:45. Please present your reception ticket (which you will find in your registration package) to the hosts in the museum lobby. The Royal BC Museum is located at 675 Belleville Street, across from the Empress Hotel and the Victoria Conference Centre.

Thursday, October 2

Banquet
Fairmont Empress, Crystal Ballroom *[18:30]*

To honour the 100th Anniversary of one of Canada's landmark hotels, we will be enjoying a banquet menu created in celebration of this Centennial.

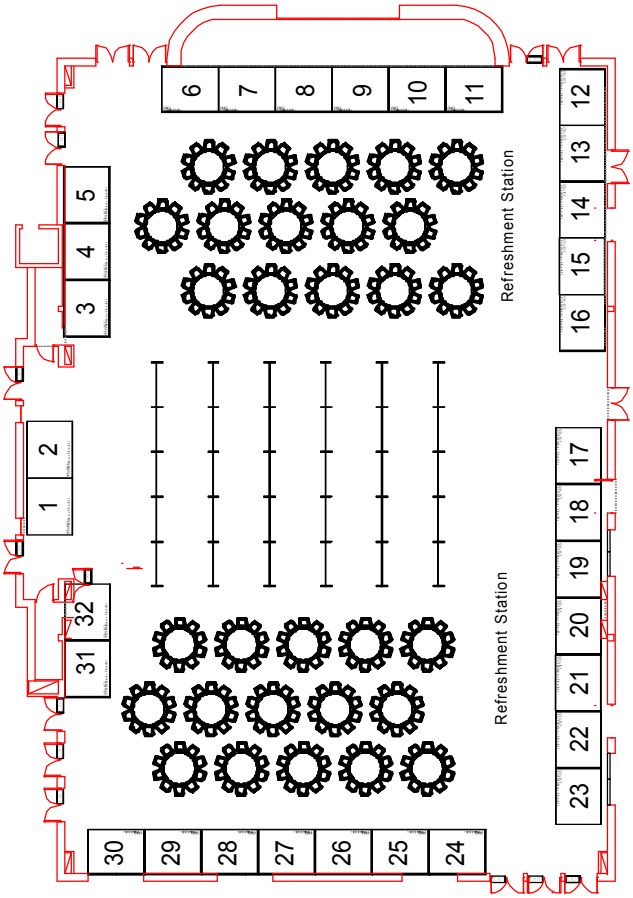
Saturday, October 4

TRIUMF Tour

A tour of TRIUMF will be available on Saturday, October 4th and will include bus transportation to Vancouver on Friday, October 3rd after the conclusion of the conference, transportation to TRIUMF on Saturday morning, lunch at TRIUMF, and transportation back to the airport hotel. *The cost for this tour is not included with your registration fee.*

Friday October 3	13:45	Bus departs Victoria Conference Centre for Vancouver
	15:00	Board ferry for Vancouver
	17:30	Bus arrives at the Fairmont Vancouver Airport Hotel/YVR
Saturday October 4	09:15	Bus departs Fairmont Vancouver Airport Hotel for TRIUMF
	10:00	TRIUMF Tour
	12:00	Lunch at TRIUMF
	14:00	Bus departs TRIUMF for Fairmont Vancouver Airport Hotel
	14:45	Arrival at Fairmont Vancouver Airport Hotel / YVR

Industrial Exhibitors



Carson Hall

Exhibit Hours:

The exhibit hall is located in Carson Hall on Level 2 of the Victoria Conference Centre.

Monday, September 29	12:00 to 17:30
Tuesday, September 30	08:00 to 17:30
Wednesday, October 1	08:00 to 13:30
Thursday, October 2	08:00 to 17:30

Exhibitors and sponsors registered at press time.

1. Instrumentation Technologies
2. Accel Instruments
3. Lambda Americas/Test Force
4. Muons, Inc.
5. PAVAC Industries Inc.
6. NTG
7. National Instruments
8. Plansee
9. L-3 Communications Electron Devices
10. CST Computer Simulation Technology
11. ZTEC Instruments
12. Diversified Technologies Inc.
13. Varian Canada, Inc.
14. Bruker Biospin
15. Communications & Power Industries (CPI)
16. Amuneal Manufacturing Corp.
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18. Apple Canada
19. AttoCube Systems
20. AAPS Advanced Applied Physics Solutions
21. Thales Components Corporation
22. Tech-X Corporation
23. Goodfellow Cambridge Corp.
24. AccelSoft/G.H. Gillespie
25. Radiabeam Technologies
26. Advanced Magnet Lab.The Ferrite Company
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28. The Ferrite Company

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Bruker Biospin	Wine at Banquet
Instrumentation Technologies	Poster Session
LINAC Systems LLC	Bar at Banquet
Richardson Electronics	Prize Donation
WC Heraeus GmbH	Student Sponsor

Student Awards and Sponsors

We would like to thank our student sponsors AAPS and WC Heraeus GmbH who helped bring the following students to Victoria:

Adli, Erik
(U. Oslo/CERN)

Cheng, Yi
(IHEP CAS, Beijing)

Franke, Sylvain
(*TEMF, TU Darmstadt)*

Grassellino, Anna
(*U. Pennsylvania/TRIUMF)*

Ichikawa, Masahiro
(*ICR, Kyoto U.)*

Ishibashi, Takuya
(*RLNR, Tokyo IT)*

Kato, Yuta
(*RISE, Waseda U.)*

Keung, Justin
(*U. Pennsylvania)*

Koeth, Timothy
(*Rutgers U./FNAL)*

Kutsaev, Sergey
(*MEPhI)*

Longuevergne, David
(*IPN Orsay)*

Mavric, Uros
(*FNAL)*

Mehrotra, Nitin
(*BARC)*

Paparella, Rocco
(*INFN/LASA)*

Pfister, Jochen
(*IAP, Goethe U.)*

Plostinar, Ciprian
(*JAI)*

Posocco, Piero Antonio
(*Consorzio RFX, INFN/LNL)*

Sakaue, Kazuyuki
(*RISE, Waseda U.)*

Sugimoto, Takanori
(*ICR, Kyoto U.)*

Tam, Wai-Ming
(*Indiana U./FNAL)*

Wilson, Joshua
(*U. Tennessee/ORNL-SNS)*

Yamada, Masako
(*ICR, Kyoto U.)*

Yan, Fang
(*TRIUMF)*

Wireless Internet

Wireless Internet is available to all delegates in the Victoria Conference Centre. The network name is “VCC”.

Internet Café hours are:

Sunday	15:00 - 17:30
Monday	08:00 - 18:00
Tuesday	08:00 - 18:00
Wednesday	08:00 - 13:30
Thursday	08:00 - 18:00
Friday	08:00 - 13:00

Speakers

The speaker preparation room is located on Level 1 in the Sooke Room. This is an area where speakers can preview/test their presentations. Please note that all speakers must give their presentations with the computer system set up in the Lecture Hall. Use of individual laptops cannot be accommodated.

Proceedings Office

The Proceedings Office is located in Oak Bay 1. Editorial staff will process papers before and during the conference.
The paper submission deadline was Thursday, September 25. Authors are requested to check on their papers via the status board that will be located in or near the Proceedings Office.

Proceedings Office hours are:

Sunday	15:00 - 19:00
Monday	08:30 - 18:00
Tuesday	08:30 - 18:00
Wednesday	08:30 - 12:00
Thursday	08:30 - 18:00
Friday	08:30 - 11:00

The conference proceedings will be published on CD-ROM and on the Joint Accelerator Conferences Website (JACoW): http://www.JACoW.org

Scientific Program

The schedule included herein details the scientific program with the program code, title and authors of each paper (only publicly available information will be discussed). Full texts of the oral abstracts are included.

Oral Sessions

All oral sessions will be in the Lecture Theatre. A preview/testing area is available for speakers in the Sooke Room.

Please note that all speakers must give their presentations from the computer systems set up in the lecture theatre. Use of individual laptops cannot be accommodated.

Student Poster Session

A special poster session for students will take place during delegate registration on Sunday, September 28th. The student category includes: a student registered for a Ph.D. or diploma in accelerator physics or engineering; a Post Doctoral Fellow in accelerator physics or engineering; or a trainee accelerator physicist or engineer in the educational phase of their professional career.

Student posters should be mounted in Prefunction 1 at 13:00 and manned from 14:00–15:00 for judging and from 17:00–19:00 for general viewing. In accordance with the guidelines for publication of contributions, these posters must also be displayed during the regular poster sessions.

Poster Sessions

There will be three poster sessions during the conference. The posters are in the Carson Hall on Level 2 of the Victoria Conference Centre. Each session will begin with an hour long oral session.

Monday, September 29	14:20 to 17:30
Tuesday, September 30	14:20 to 17:30
Thursday, October 2	14:40 to 17:30

Posters should be in place by the beginning of the scheduled session time and should be taken down at the end of each session. Any posters not removed by 18:00 will be removed by staff and discarded.

Authors are reminded that no contributions are accepted for publication only. Any paper that is not presented at the conference will be excluded from the proceedings.

The Scientific Program Committee reserves the right to refuse papers for publication that have not been properly presented or staffed in the poster sessions. Manuscripts of contributions to the proceedings (or enlargements of them) are not considered to be posters, and papers represented in this way will not be accepted for publication.

Identification of Contributions

The date and type of presentation for each contribution in the program can be easily identified from the program code, which is composed as follows:

- The first two letters indicate the day: MO, TU, WE, TH, FR.
- For oral sessions, the third letter indicates the order of the session (1, 2, or 3).
- For posters sessions, the third letter is a P.
- A two digit (oral) or three digit (poster) sequence number.

Monday, September 29

08:30 – 10:30 Oral Session MO1
[Lecture Theatre] – Chair: Robert Laxdal

08:30 Welcome and Announcements
09:00 ISAC-II Operation and Future Upgrades
Marco Marchetto
09:30 The European XFEL SC Linac Project
Reinhold Brinkmann
10:00 SNS Superconducting Linac Operational Experience and Upgrade Path
Sang-Ho Kim

10:30 – 11:00 Coffee Break

11:00 – 12:20 Oral Session MO2
[Lecture Theatre] – Chair: Stuart Henderson

11:00 Progress in the Beam Commissioning of the J-PARC Linac and Its Upgrade Path
Masanori Ikegami
11:20 Status of a High Current Linac Accelerator at CSNS
Shinian Fu
11:40 The SARAF CW 40 MeV Proton/Deuteron Accelerator
Israel Mardor
12:00 The Injector Systems of the FAIR Project
Winfried Barth

12:20 Lunch

13:40 – 14:20 Oral Session MO3
[Lecture Theatre] – Chair: Won Namkung

13:40 Overview of the High Intensity Neutrino Source Linac R&D Program at Fermilab
Robert Webber
14:00 An Overview of Recent RFQ Projects
Alwin Schempp

Tuesday, September 30

08:30 – 10:30 Oral Session TU1
[Lecture Theatre] – Chair: Yoshishige Yamazaki

08:30 Unique Features of the J-PARC Linac and Its Performance - Lessons Learnt
Akira Ueno
09:00 Status of the Construction of the SPIRAL2 Accelerator at GANIL
Tomas Junquera
09:30 CERN Linac Upgrade Activities
Alessandra Lombardi
10:00 Laser Acceleration of Quasi-Monoenergetic MeV-GeV Ion Beams
Juan Fernandez

10:30 – 11:00 Coffee Break

11:00 – 12:20 Oral Session TU2
[Lecture Theatre] – Chair: Chris Adolphsen

11:00 Linac R&D for the ILC Technical Design Report
Marc Ross
11:20 ILC Siting in Moscow Region Near Dubna and Linear Accelerator Activities at JINR
Grigori Shirkov
11:40 Status and Future Prospects for CLIC
Steffen Doebert
12:00 Performance Review of L-Band and S-Band Multi-Beam Klystrons
Yong Ho Chin

12:20 Lunch

13:40 – 14:20 Oral Session TU3
[Lecture Theatre] – Chair: John Staples

13:40 Positron Sources and Propagation in Plasma Wakefield Accelerators
Patric Muggli
14:00 Control, Stability and Staging in Laser Wakefield Accelerators
Dmitriy Panasenko

Wednesday, October 1

08:30 – 10:30 Oral Session WE1
[Lecture Theatre] **–** Chair: Paolo Pierini

08:30 Overview of Energy Recovery Linacs
Geoffrey Krafft
09:00 High Average Current SRF Cavities
Takaaki Furuya
09:30 First Results from the ERL Prototype at Daresbury
David Holder
09:50 First Tests of the Cornell University ERL Injector
Bruce Dunham
10:10 RF Control of High Q_L Superconducting Cavities
Curt Hovater

10:30 – 11:00 Coffee Break

11:00 – 12:40 Oral Session WE2
[Lecture Theatre] **–** Chair: Milorad Popovic

11:00 RF Systems for CW SRF Linacs
Sergey Belomestnykh
11:20 Operational Experience with High Power Beams at the SNS Linac
John Galambos
11:40 Fermilab's Project X
Sergei Nagaitsev
12:00 IH-DTL Linac as a Compact Injector for a Heavy-Ion Medical Synchrotron
Yoshiyuki Iwata
12:20 Commissioning and Operation of the Injector Linacs for HIT and CNAO
Bernhard Schlitt

13:30 Excursion

19:00 Reception at Royal BC Museum

Thursday, October 2

08:30 – 10:30 Oral Session TH1
[Lecture Theatre] **–** Chair: Roland Garoby

08:30 Superconducting RF R&D Toward High Gradient
Camille Ginsburg
09:00 SRF Development for Ion Acceleration
Guillaume Olry
09:30 Developing Facilities for SNS Cryomodule Performance Improvement
John Mammosser
10:00 An Overview of Linac Ion Sources
Roderich Keller

10:30 – 11:00 Coffee Break

11:00 – 12:20 Oral Session TH2
[Lecture Theatre] **–** Chair: Alok Chakrabarti

11:00 Charge State Boosters for Radioactive Ion Acceleration
Friedhelm Ames
11:20 Heavy Ion Linac Booster at IUAC, New Delhi
Amit Roy
11:40 Beam Compression in Heavy-Ion Induction Linacs
Peter Seidl
12:00 Student Prize Winner Talk

12:20 Lunch

13:40 – 14:40 Oral Session TH3
[Lecture Theatre] **–** Chair: Guoxi Pei

13:40 Beam Dynamics Studies of the 8 GeV Linac at FNAL
Peter Ostroumov
14:00 Transport Limits in Periodic Focusing Channels
Steven Lund
14:20 Towards a Model Driven Accelerator with Petascale Computing
Brahim Mustapha

18:30 Banquet at Fairmont Empress, Crystal Ballroom

Friday, October 3

08:30 – 10:30 Oral Session FR1
[Lecture Theatre] **–** Chair: Hans Weise

08:30 8 GeV C-Band Accelerator Construction for XFEL/SPring-8
Takahiro Inagaki
09:00 Commissioning of the LCLS Linac
Henrik Loos
09:30 Operation of FLASH as a FEL User Facility
Katja Honkavaara
09:50 Review of Advanced Laser Technologies for Photocathode High-Brightness Guns
Hiromitsu Tomizawa
10:10 Billion Particle Linac Simulations for Future Light Sources
Ji Qiang

10:30 – 11:00 Coffee Break

11:00 – 12:40 Oral Session FR2
[Lecture Theatre] **–** Chair: Paul Schmor

11:00 The IFMIF 5 MW Linacs
Alban Mosnier
11:20 Linacs for Future Muon Facilities
S. Alex Bogacz
11:40 Neutrons and Photons: Probes of Condensed Matter
William Stirling
12:10 The Holy Grail of Particle Physics - The Higgs Boson
Nigel Lockyer

12:40 Closing Remarks

Monday Oral Session, MO1
Lecture Theatre 08:30
Session Chair: Robert Laxdal

[08:30]
Welcome and Announcements

[09:00]
MO101 - ISAC-II Operation and Future Plans
M. Marchetto (TRIUMF, Vancouver)
The ISAC-II superconducting heavy ion linac now accelerates radioactive ion beams with the highest gradient of any operating SC ion facility in the world and provides a 20 MV boost to the ISAC accelerated beams. The addition of a further 20 MV of SC linac, with cavities made in Canada, will be installed by the end of 2009. The ISAC-III project scheduled to begin in 2010 will see the installation of an additional driver beam of 50 MeV electrons to produce RIBs by photofission, an expanded target area, and new front-end ion accelerators to expand the capability to three simultaneous radioactive beams for experiments.

[09:30]
MO102 - The European XFEL SC Linac Project
R. Brinkmann (DESY, Hamburg)
The European XFEL project is entering the construction phase, based on the very successful experience of the TESLA linac technology and the SASE FEL concept, now serving the FLASH user facility at DESY. The EU-XFEL will be realized by a widespread international collaboration and it is also relevant for the ILC planning. A description of the overall layout of the facility, of the technical developments and industrialization efforts for the accelerator components, and of the international collaboration will be given.

[10:00]
MO103 - SNS Superconducting Linac Operational Experience and Upgrade Path
S.-H. Kim (ORNL, Oak Ridge, Tennessee)
The SNS Superconducting Linac (SCL) has been providing the main acceleration in two different accelerating sections with 33 medium beta and 48 high beta superconducting radio-frequency (SRF) 6-cell cavities. The use of superconducting elliptical cavities

for particles whose velocity are less than the speed of light, make this accelerator a very important milestone for learning operating conditions of this cavity type. Since the SNS SCL is the first large-scale high energy pulsed-superconducting proton linac that provides hig h beam power utilizing H- beams, many aspects of its performance were unknown and unpredictable. A large amount of data has been collected on the pulsed behavior of cavities and cryomodules at various repetition rates and at various temperatures. This experience will be of great value in determining future optimizations of SNS as well in guiding in the design and operation of future pulsed superconducting linacs. This paper describes the details of the rf properties, performances, path-forward for the SNS power ramp-up goal, and upgrade path of the SNS superconducting linac.

SNS is managed by UT-Battelle, LLC, under contract DE-AC05-00OR22725 for the U.S. Department of Energy

Monday Oral Session, MO2
Lecture Theatre 11:00
Session Chair: Stuart Henderson

[11:00]

MO201 - Progress in the Beam Commissioning of the J-PARC Linac and its Upgrade Path

M. Ikegami (JAEA/J-PARC, Tokai-Mura, Naka-Gun, Ibaraki-Ken)

The beam commissioning of J-PARC linac has been started since November 2006, and the initial commissioning has been completed in September 2007. Since then, the linac beam has been supplied to the succeeding RCS (Rapid Cycling Synchrotron) for its commissioning with occasional linac beam studies for finer tuning. The emphasis of the linac tuning has been shifted to the characterization and stabilization of the beam parameters, and better beam availability has gradually been required for the linac operation. In this paper, we present the current linac performance and operational experience obtained so far after a brief review of the commissioning history. Remaining commissioning tasks and the future upgrade plan to increase the beam power are also discussed.

[11:20]

MO202 - Status of a High Current Linear Accelerator at CSNS

S. Fu, Y. Cheng, J. Li, H.F. Ouyang, J. Peng, Z.R. Sun, X. Yin (IHEP Beijing, Beijing)

China Spallation Neutron Source (CSNS) consist of an H- linac as an injector of a rapid cycling synchrotron of 1.6 GeV. The 324 MHz rf linac is designed with beam energy of 81 MeV and a peak current of 30 mA. The linac design and R&D are in progress. A test stand of a Penning ion source is under construction. RFQ technology has been developed in ADS study, with beam energy of 3.5 MeV, a peak current of 47 mA at 7% duty factor and a beam transmission rate more than 94%. The first segment of the DTL tank has been fabricated. This paper will introduce the design and R&D status of the linac.

[11:40]

MO203 - The SARAF CW 40 MeV Proton/Deuteron Accelerator

A. Nagler, D. Berkovits, I. Mardor (Soreq NRC, Yavne), K. Dunkel, M. Pekeler, C. Piel (ACCEL, Bergisch Gladbach)

The Soreq Applied Research Accelerator Facility, SARAF, is currently under construction at Soreq NRC. SARAF is based on a continuous wave (cw), proton/deuteron rf superconducting linear accelerator with variable energy (5-40 MeV) and current (0.04-2 mA). SARAF is designed to enable hands-on maintenance, which implies beam loss below 10^5 for the entire accelerator. Phase I of SARAF consists of an ECR ion source, a LEBT section, a 4-rod RFQ, a MEBT section, a superconducting module housing 6 half-wave resonators and 3 superconducting solenoids, a diagnostic plate and a beam dump. Phase II will include 5 additional superconducting modules. The ECR source has been in routine operation since 2006, the RFQ has been operated with ions and is currently under characterization. The superconducting module rf performance is being characterized off the beam line. Phase I commissioning results, their comparison to beam dynamics simulations and Phase II plans will be presented.

[12:00]

MO204 - The Injector Systems of the FAIR Project

W. Barth (GSI, Darmstadt)

The present GSI accelerator chain will serve as an injector for FAIR. The linear accelerator UNILAC and the

heavy ion synchrotron SIS18 should deliver up to 10^{12} U^{28+} particles/s. In the past two years different hardware measures and a careful fine tuning of the UNILAC resulted in a 35% increase of the beam intensity to a new record of 1.25 x 10^{11} U^{27+} ions per 100mues or 2.3 x 10^{10} U^{73+} ions per 100mues. The increased stripper gas density, the optimization of the Alvarez-matching, the use of various newly developed beam diagnostics devices and a new charge state separator system in the foil stripper section comprised the successful development program. The contribution reports results of beam measurements during the high current operation with uranium beams (pulse beam power up to 0.65 MW). The UNILAC-upgrade for FAIR will be continued by assembling a new front-end for U^{4+}, stronger power supplies for the Alvarez quadrupoles, and versatile high current beam diagnostics devices. Additionally, the offered primary proton beam intensities will be increased by a new proton linac, which should be commissioned in 2013.

EU-Research Infrastructure Activity under the FP6 "Structuring the European Research Area" program (CARE, contract number RII3-CT-2003-506395); EU-INTAS Project Ref. no. 06-1000012-8782

Monday Oral Session, MO3
Lecture Theatre 13:40
Session Chair: Won Namkung

[13:40]

MO301 - Overview of the High Intensity Neutrino Source Linac R&D Program at Fermilab

R.C. Webber (Fermilab, Batavia, Illinois)

The High Intensity Neutrino Source (HINS) linac R&D program at Fermilab aims to construct and operate a first-of-a-kind, 60 MeV, superconducting H- linac. The machine will demonstrate acceleration of high intensity beam using superconducting spoke cavities from 10 MeV, solenoidal focusing optics throughout for axially-symmetric beam to control halo growth, and operation of many cavities from a single high power rf source for acceleration of non-relativistic particles.

Fermilab is operated by Fermi Research Alliance, LLC under Contract No. DE-AC02-07CH11359 with the United States Department of Energy.

[14:00]

MO302 - An Overview of Recent RFQ Projects

A. Schempp (IAP, Frankfurt am Main)

RFQs are the new standard injector for a number of projects. The development of the 4-Rod RFQ structure has led to a number of interesting developments, which will be discussed with actual projects as examples. Recent work on the FAIR - p linac, the GSI - high charge state injector upgrade, the GSI - HITRAP, the new BNL - EBIS-RFQ, and the RFQ of the MSU - CW Reaccelerator will be presented and the status of these projects and will be discussed.

Monday Poster Session, MOP
Lecture Theatre 14:20
Carson Hall 15:20
Session Chair: Deepak Raparia

MOP001 - A Coupled RFQ-Drift tube Combination for FRANZ

A. Bechtold, U. Bartz, P. Fischer, P. Kolb, H. Liebermann, O. Meusel, U. Ratzinger, A. Schempp, C. Zhang (IAP, Frankfurt am Main), G. Clemente (GSI, Darmstadt)

MOP002 - Injector Development for High Intensity Proton Beams at SGZ

O. Meusel, A. Bechtold, L.P. Chau, H. Podlech, U. Ratzinger, C. Wiesner (IAP, Frankfurt am Main)

MOP003 - Performance of the Control System for the J-PARC Linac

H. Yoshikawa, T. Suzuki (JAEA, Ibaraki-ken), H. Sakaki (JAEA, Tokai-mura), Y.I. Itoh, Y. Kato, M. Kawase, H. Sako, G.B. Shen [on leave], H. Takahashi (JAEA/J-PARC, Tokai-Mura, Naka-Gun, Ibaraki-Ken), T. Ishiyama (KEK/JAEA, Ibaraki-Ken), S.F. Fukuta (MELCO SC, Tsukuba), S.S. Sawa (Total Saport System Corp., Naka-gun, Ibaraki), H. Ikeda (Visual Information Center, Inc., Ibaraki-ken)

MOP004 - Operating Experience of the J-PARC Linac

K. Hasegawa (JAEA/J-PARC, Tokai-Mura, Naka-Gun, Ibaraki-Ken)

MOP005 - Beam Test Results of the PEFP 20 MeV Proton Accelerator at KAERI
Y.-S. Cho, I.-S. Hong, J.-H. Jang, D.I. Kim, H.S. Kim, H.-J. Kwon, B.-S. Park, K.T. Seol, Y.-G. Song, S.P. Yun (KAERI, Daejon)

MOP006 - Stability of Normal Conducting Structures Operation with High Average Heat Loading
V.V. Paramonov (RAS/INR, Moscow)

MOP007 - Status of the LINAC4 Project at CERN
M. Vretenar, C. Carli, R. Garoby, F. Gerigk, K. Hanke, A.M. Lombardi, S. Maury, C. Rossi (CERN, Geneva)

MOP008 - Development of a Cell-Coupled Drift Tube Linac (CCDTL) for Linac4
M. Vretenar, Y. Cuvet, G. De Michele, F. Gerigk, M. Pasini, S. Ramberger, R. Wegner (CERN, Geneva), E. Kenjebulatov, A. Kryuchkov, E. Rotov, A.G. Tribendis (BINP SB RAS, Novosibirsk)

MOP009 - Status of the RAL Front End Test Stand
A.P. Letchford, M.A. Clarke-Gayther, S.R. Lawrie, P. Romano, P. Wise (STFC/RAL/ISIS, Chilton, Didcot, Oxon), F.J. Bermejo (Bilbao, Bilbao), J. Lucas (Elytt Energy, Madrid), R. Enparantza (Fundacion TEKNIKER, Eibar (Gipuzkoa)), J. Alonso (Fundacion Tekniker, Elbr (Guipuzkoa)), S. Jolly, A. Kurup, D.A. Lee, P. Savage (Imperial College of Science and Technology, London), J.K. Pozimski (Imperial College of Science and Technology, London; STFC/RAL, Chilton, Didcot, Oxon), C. Gabor, D.C. Plostinar (STFC/RAL/ASTeC, Chilton, Didcot, Oxon), J.J. Back (University of Warwick, Coventry)

MOP010 - A Fast Chopper for the Fermilab High Intensity Neutrino Source (HINS)
R.L. Madrak, D. Wildman (Fermilab, Batavia, Illinois), A.K.L. Dymokde-Bradshaw, J.D. Hares, P.A. Kellett (Kentech Instruments Ltd., Wallingford, Oxfordshire)

MOP011 - A Fermilab CW Linac With High Potential Beam Power
M. Popovic, C.M. Ankenbrandt (Fermilab, Batavia, Illinois), R.A. Rimmer (Jefferson Lab, Newport News, Virginia), I.B. Enchevich, R.P. Johnson (Muons, Inc, Batavia), R.A. Baartman (TRIUMF, Vancouver)

MOP012 - High Power Test of HINS RT CH Cavities
W.M. Tam (Fermilab, Batavia, Illinois; IUCF, Bloomington, Indiana), G. Apollinari, T.N. Khabiboulline, R.L. Madrak, A. Moretti, L. Ristori, G.V. Romanov, J. Steimel, R.C. Webber, D. Wildman (Fermilab, Batavia, Illinois)

MOP013 - Focusing Solenoids for the HINS Linac Front End
I. Terechkine, G. Apollinari, J. DiMarco, Y. Huang, D.F. Orris, T.M. Page, R. Rabehl, M. Tartaglia, J. C. Tompkins (Fermilab, Batavia, Illinois)

MOP014 - Status of the LANSCE Refurbishment Project
J.L. Erickson, K.W. Jones, M.W. Strevell (LANL, Los Alamos, New Mexico)

MOP015 - Operational Status and Future Plans for the Los Alamos Neutron Science Center (LANSCE)
K.W. Jones, K. Schoenberg (LANL, Los Alamos, New Mexico)

MOP016 - Operational Experience of the SNS Front End and Warm Linac
A.V. Aleksandrov (ORNL, Oak Ridge, Tennessee)

MOP017 - The Proposed ISAC-III Low-Energy Area and Accelerator Upgrades
R.E. Laxdal, F. Ames, R.A. Baartman, M. Marchetto, M. Trinczek, F. Yan, V. Zvyagintsev (TRIUMF, Vancouver)

MOP018 - ISAC-II Superconducting Linac Upgrade - Design and Status
R.E. Laxdal, R.J. Dawson, M. Marchetto, A.K. Mitra, W.R. Rawnsley, T.C. Ries, I. Sekachev (TRIUMF, Vancouver)

MOP019 - The HITRAP Decelerator Project at GSI - Status and Commissioning Report
L.A. Dahl, W. Barth, M. Kaiser, O.K. Kester, H.J. Kluge, J. Pfister, W. Quint, T. Stoehlker, W. Vinzenz (GSI, Darmstadt), B. Hofmann, U. Ratzinger, A.C. Sauer, A. Schempp (IAP, Frankfurt am Main)

MOP020 - Post-Accelerator LINAC Development for the RIB Facility Project at VECC, Kolkata
A. Bandyopadhyay, A. Chakrabarti, T.K. Mandi, M. Mondal, H.K. Pandey (DAE/VECC, Calcutta)

MOP021 - Towards the Development of Rare Isotope Beam Facility at VECC Kolkata
V. Naik, A. Bandyopadhyay, D. Bhowmick, A. Chakrabarti, M. Chakrabarti, S. Dechoudhury, J.S. Kainth, P. Karmakar, T. Kundu Roy, T.K. Mandi, M. Mondal, H.K. Pandey, D. Sanyal (DAE/VECC, Calcutta)

MOP022 - The ALPI Superconducting Accelerator Upgrade for the SPES Project
P.A. Posocco (Consorzio RFX, Padova; INFN/LNL, Legnaro, Padova), G. Bisoffi, A. Pisent (INFN/LNL, Legnaro, Padova)

MOP023 - Present Status of RIKEN Heavy-Ion Linac
O. Kamigaito, T. Fujinawa, N. Fukunishi, A. Goto, Y. Higurashi, E. Ikezawa, M. Kase, M. Kidera, T. Nakagawa, J. Ohnishi (RIKEN, Wako, Saitama), R. Koyama, H. Okuno, N.S. Sakamoto, Y. Sato, Y. Yano (RIKEN, Saitama)

MOP024 - Low Energy Spread Beam Dynamics and RF Design for a Trapezoidal IH-RFQ
Y.R. Lu, J.-E. Chen, J.X. Fang, Z.Y. Guo, K.X. Liu, Y.C. Nie, X.Q. Yan, K. Zhu (PKU/IHIP, Beijing)

MOP025 - An Intermediate Structure SFRFQ Between RFQ and DTL
Y.R. Lu, J.-E. Chen, J.X. Fang, S.L. Gao, M. Kang, S.X. Peng, Z. Wang, R. Xu, X.Q. Yan, M. Zhang, J. Zhao, K. Zhu (PKU/IHIP, Beijing)

MOP026 - Heavy-Ion Linac Injector Project in Lanzhou
Y. Liu, Y. He, B. Wei, J.W. Xia, W.-L. Zhan, H.W. Zhao (IMP, Lanzhou)

MOP027 - Heavy Ion Injector for NICA/MPD Project
G.V. Trubnikov, E.D. Donets, E.E. Donets, A. Govorov, V. Kobets, I.N. Meshkov, V. Monchinsky, A.O. Sidorin (JINR, Dubna, Moscow Region), O.K. Belyaev, Yu.A. Budanov, A. Maltsev, I.A. Zvonarev (IHEP Protvino,

Protvino, Moscow Region)

MOP028 - A SC Upgrade for the REX-ISOLDE Accelerator at CERN
M. Pasini, S. Calatroni, M. Lindroos, V. Parma, T. Trilhe, D. Voulot, F.J.C. Wenander (CERN, Geneva), P.A. McIntosh (STFC/DL/ASTeC, Daresbury, Warrington, Cheshire), R.M. Jones (UMAN, Manchester)

MOP029 - Beam Dynamics Studies for the SCREX-ISOLDE Linac at CERN
M. Pasini, D. Voulot (CERN, Geneva), M.A. Fraser, R.M. Jones (UMAN, Manchester)

MOP030 - Multiple User Beam Distribution System for FRIB Driver Linac
D. Gorelov, V. Andreev, S. Chouhan, X. Wu, R.C. York (NSCL, East Lansing, Michigan)

MOP031 - Estimates of Energy Fluence at the Focal Plane in Beams Undergoing Neutralized Drift Compression
J.J. Barnard (LLNL, Livermore, California), D. Ogata, P.A. Seidl (LBNL, Berkeley, California), D.R. Welch (Voss Scientific, Albuquerque, New Mexico)

MOP032 - Upgrade of the GSI High Current Injector RFQ
A. Kolomiets, S. Minaev (ITEP, Moscow), W. Barth, L.A. Dahl, H. Vormann, S. Yaramyshev (GSI, Darmstadt)

MOP033 - RF-Tuning of the EBIS- RFQ
M. Vossberg, B. Hofmann, A. Schempp (IAP, Frankfurt am Main), J.G. Alessi, D. Raparia, L. Snydstrup (BNL, Upton, Long Island, New York)

MOP034 - Heavy Ion Radio Frequency Quadrupole LINAC for VEC-RIB Facility
S. Dechoudhury, A. Bandyopadhyay, D. Bhowmick, A. Chakrabarti, T. Kundu Roy, M. Mondal, V. Naik, H.K. Pandey, D. Sanyal (DAE/VECC, Calcutta)

MOP035 - Transition Cell of RFQ Linac
N. Mehrotra (BARC, Mumbai)

MOP036 - The IFMIF-EVEDA RFQ: Beam Dynamics Design
M. Comunian, A. Pisent (INFN/LNL, Legnaro, Pado-

va), E. Fagotti (Consorzio RFX, Padova)

MOP037 - RF Design of the IFMIF-EVEDA RFQ
F. Grespan (INFN/LNL, Legnaro, Padova; Universita degli Studi di Milano, Milano), A. Palmieri, A. Pisent (INFN/LNL, Legnaro, Padova)

MOP038 - Fabrication and Testing of TRASCO RFQ
E. Fagotti (Consorzio RFX, Padova; INFN/LNL, Legnaro, Padova), S.J. Mathot (CERN, Geneva), M. Comunian, A. Palmieri, A. Pisent, C. Roncolato (INFN/LNL, Legnaro, Padova), F. Grespan (Universita degli Studi di Milano, Milano; INFN/LNL, Legnaro, Padova)

MOP039 - Design of a 2-Beam Type IH-RFQ Linac for High Intense Heavy Ion Beam Accelerations in Low Energy Region
T. Ishibashi, T. Hattori, N. Hayashizaki (RLNR, Tokyo)

MOP040 - The Radiofrequency Quadrupole Accelerator for the CERN Linac4.
C. Rossi, P. Bourquin, J.-B. Lallement, A.M. Lombardi, S.J. Mathot, M.A. Timmins, G. Vandoni, M. Vretenar (CERN, Geneva), S. Cazaux, O. Delferriere, M. Desmons, R. Duperrier, A. France, D. Leboeuf, O. Piquet (CEA, Gif-sur-Yvette)

MOP041 - The Fabrication and Initial Testing of the HINS RFQ
G. Apollinari, B.M. Hanna, T.N. Khabiboulline, G.R. Kobliska, A. Lunin, A. Moretti, T.M. Page, G.V. Romanov, J. Steimel, R.C. Webber, D. Wildman (Fermilab, Batavia, Illinois), P.N. Ostroumov (ANL, Argonne, Illinois), W.M. Tam (IUCF, Bloomington, Indiana)

MOP042 - Complete RF Design of the HINS RFQ with CST MWS and HFSS
G.V. Romanov, A. Lunin (Fermilab, Batavia, Illinois)

MOP043 - Simulation of Multipacting in HINS Accelerating Structures with CST Particle Studio
G.V. Romanov (Fermilab, Batavia, Illinois)

MOP044 - Status of DPIS Development in BNL
M. Okamura (BNL, Upton, Long Island, New York), J. Tamura (Department of Energy Sciences, Yokohama), T. Kanesue (Kyushu University, Fukuoka)

MOP045 - Design Study of a DPIS Injector for a Heavy Ion FFAG
M. Okamura, D. Raparia (BNL, Upton, Long Island, New York), K. Ishibashi, T. Kanesue, Y. Yonemura (Kyushu University, Fukuoka)

MOP046 - Commissioning of the New GSI-Charge State Separator System for High Current Heavy Ion Beams
W. Barth, L.A. Dahl, P. Gerhard, L. Groening, M. Kaiser (GSI, Darmstadt)

MOP047 - Quadrupole Magnet Development for 132 MeV DTL of CSNS
Y. Cheng, S. Fu, K.Y. Gong, Z.R. Sun, X. Yin (IHEP Beijing, Beijing)

MOP048 - DTL Tank Development of 132 MeV Linac for CSNS
Z.R. Sun, Y. Cheng, S. Fu, K.Y. Gong, X. Yin (IHEP Beijing, Beijing)

MOP049 - Drift Tube Linac Design and Prototyping for the CERN Linac4
S. Ramberger, N. Alharbi, P. Bourquin, Y. Cuvet, F. Gerigk, A.M. Lombardi, E.Zh. Sargsyan, M. Vretenar (CERN, Geneva), A. Pisent (INFN/LNL, Legnaro, Padova)

MOP050 - Development of Investigations at the MILAC Heavy-Ion Linear Accelerator
A.P. Kobets, V.A. Bomko, O.F. Dyachenko, M.S. Lesnykh, K.V. Pavlij, Z.O. Ptukhina, V.N. Reshetnikov, S.S. Tishkin, A.M. Yegorov, A.V. Zabotin, B.V. Zajtsev, V.G. Zhuravlev, B.N. Zinchenko (NSC/KIPT, Kharkov)

MOP051 - Operations at the Fermilab Linac
L.J. Allen (Fermilab, Batavia, Illinois)

MOP052 - Re-phasing of the ISAC Superconducting Linac with Computed Values
M. Marchetto, R.E. Laxdal, F. Yan (TRIUMF, Vancouver)

MOP053 - The SPIRAL2 Superconducting Linac
R. Ferdinand (GANIL, Caen), P.-E. Bernaudin, P. Bosland (CEA, Gif-sur-Yvette), T. Junquera, G. Olry, H. Saugnac (IPN, Orsay), Y. Gomez-Martinez (LPSC, Grenoble)

MOP054 - Experience with Stripping Carbon foils in ALPI Superconducting Accelerator
P.A. Posocco (Consorzio RFX, Padova; INFN/LNL, Legnaro, Padova), A. Pisent, M. Poggi (INFN/LNL, Legnaro, Padova)

MOP055 - Plans for a Superconducting H- Linac (SPL) at CERN
R. Garoby, O. Brunner, S. Calatroni, E. Ciapala, F. Gerigk, A.M. Lombardi, R. Losito, V. Parma, C. Rossi, J. Tuckmantel, M. Vretenar, W. Weingarten (CERN, Geneva)

MOP056 - The Status of MSU Re-Accelerator
X. Wu, C. Compton, M. Doleans, W. Hartung, D. Lawton, G. Machicoane, F. Marti, P.S. Miller, R.C. York, Q. Zhao (NSCL, East Lansing, Michigan)

MOP057 - Linac Front-End Upgrade at the Cancer Therapy Facility HIT
M.T. Maier, W. Barth, A. Orzhekhovskaya, B. Schlitt, H. Vormann, S. Yaramyshev (GSI, Darmstadt), R. Cee (HIT, Heidelberg)

MOP058 - Final Tests on the First Module of the ACLIP Linac
V.G. Vaccaro (Naples University Federico II and INFN, Napoli), A.C. Raino (Bari University, Bari), V. Variale (INFN-Bari, Bari), D. Giove (INFN-Milano, Milano), M.R. Masullo (INFN-Napoli, Napoli), C. De Martinis (Universita degli Studi di Milano & INFN, Segrate), R.J. Rush (e2v, Chelmsford, Essex)

MOP059 - C6+ Ion Hybrid Single Cavity Linac with Direct Plasma Injection Scheme for Cancer Therapy
T. Hattori, N. Hayashizaki, T. Ishibashi, T. Ito (RLNR, Tokyo), M. Okamura (BNL, Upton, Long Island, New York), J. Tamura (Department of Energy Sciences, Yokohama)

MOP060 - Quality Improvement of Laser-produced Protons by Phase Rotation and its Possible Extension to High Energies
A. Noda, Y. Iwashita, H. Souda, H. Tongu, A. Wakita (Kyoto ICR, Uji, Kyoto), A. Pirozhkov (JAEA, Ibaraki-ken), H. Daido, M. Ikegami, H. Kiriyama, M. Mori, M. Nishiuchi, K. Ogura, S. Orimo, A. Sagisaka, A. Yogo (JAEA/Kansai, Kizu-machi Souraku-gun Kyoto-fu), T.

Shirai (NIRS, Chiba-shi)

MOP061 - The Feasibility of Low-Energy Electro-nuclear Power Plant
Y.A. Svistunov, M.F. Vorogushin (NIIEFA, St. Petersburg), I.V. Kudinovich (AN Krylov SRI, St. Petersburg)

MOP062 - CW Proton Linac for the BNCT Application
D.A. Swenson (Linac Systems, Albuquerque, New Mexico)

MOP063 - High-Power Lithium Target for Accelerator-Based BNCT
C.A. Willis, D.A. Swenson (Linac Systems, Albuquerque, New Mexico)

MOP064 - Bent Solenoid Tuning Simulations for the COMET Beamline.
A. Kurup (Imperial College of Science and Technology, London)

MOP066 - Status of the Muon Ionization Cooling Experiment (MICE)
D. Huang (IIT, Chicago, Illinois), M.S. Zisman (LBNL, Berkeley, California)

MOP067 - High Gradient Excitation and RF Power Generation using Dielectric Loaded Wakefield Structures
M.E. Conde, S.P. Antipov, F.J. Franchini, W. Gai, F. Gao, R. Konecny, W. Liu, J.G. Power, Z.M. Yusof (ANL, Argonne, Illinois), C.-J. Jing (Euclid TechLabs, LLC, Solon, Ohio)

MOP068 - Trains of Sub-Picosecond Electron Bunches for High-Gradient Plasma Wakefield Acceleration
P. Muggli (UCLA, Los Angeles, California), M. Babzien, K. Kusche, J.H. Park, V. Yakimenko (BNL, Upton, Long Island, New York), M.J. Hogan (SLAC, Menlo Park, California), E. Kallos (USC, Los Angeles, California)

MOP069 - Beam Dynamics Simulation for a 15 MeV Superconducting Electron Linac Coupled to a DC Photo-Injector
D. Guilhem (CEA, Bruyeres-le-Chatel), J.-L. Lemaire, S.J. Pichon (CEA, BRUYERES-le-CHATEL)

MOP070 - Beam Dynamics and Error Studies of the SPIRAL2 Driver Accelerator
P. Bertrand (GANIL, Caen), D. Uriot (CEA, Gif-sur-Yvette), J.-L. Biarrotte, L. Perrot (IPN, Orsay)

MOP071 - Alternative Designs and Beam Dynamics Simulations of the Superconducting HWR Cavities Section of the IFMIF Linac
N. Chauvin, R. Duperrier, A. Mosnier, P.A.P. Nghiem, D. Uriot (CEA, Gif-sur-Yvette)

MOP072 - Beam Dynamics Simulations of the Low Energy Beam Line for IFMIF/EVEDA
N. Chauvin, O. Delferriere, R. Duperrier, P.A.P. Nghiem, D. Uriot (CEA, Gif-sur-Yvette)

MOP073 - Parameter Design and Beam Dynamics Simulations for the IFMIF-EVEDA Accelerators
P.A.P. Nghiem, N. Chauvin, O. Delferriere, R. Duperrier, A. Mosnier, D. Uriot (CEA, Gif-sur-Yvette), C. Oliver (CIEMAT, Madrid), M. Comunian (INFN/LNL, Legnaro, Padova)

MOP074 - Beam Dynamic Simulations of Sub-PS Electron Bunch Produced in a Photo-Injector
R. Roux (LAL, Orsay)

MOP075 - Benchmarking of Measurement and Simulation of Transverse RMS-Emittance Growth Along an Alvarez DTL
L. Groening, W. Barth, W.B. Bayer, L.A. Dahl, P. Forck, P. Gerhard, I. Hofmann, S. Yaramyshev (GSI, Darmstadt), D. Uriot (CEA, Gif-sur-Yvette), R. Tiede (IAP, Frankfurt am Main), D.-O. Jeon (ORNL, Oak Ridge, Tennessee)

MOP076 - Integration of Fringe Field Alpha Magnets into the V-Code Beam Dynamics Simulation Tool
S.S. Franke, W. Ackermann, B. Steiner, T. Weiland (TEMF, Darmstadt), J. Enders, C. Hessler, Y. Poltoratska (TU Darmstadt, Darmstadt)

MOP077 - Beam Dynamics Studies on the EURISOL Driver Accelerator
A. Facco, A.I. Balabin, R. Paparella (INFN/LNL, Legnaro, Padova), R. Duperrier, D. Uriot (CEA, Gif-sur-Yvette), J.-L. Biarrotte, S. Bousson, A. Ponton (IPN, Orsay), D. Berkovits, J. Rodnizki (Soreq NRC, Yavne),

V. Zvyagintsev (TRIUMF, Vancouver)

MOP078 - Transverse Beam Matching and Orbit Corrections at J-PARC LINAC
H. Sako (JAEA/J-PARC, Tokai-Mura, Naka-Gun, Ibaraki-Ken), T. Ohkawa (JAEA, Ibaraki-ken), H. Akikawa, M. Ikegami (KEK, Ibaraki), A. Ueno (KEK/JAEA, Ibaraki-Ken)

MOP079 - Development of Modulating Permanent Magnet Sextupole Lens for Focusing of Pulsed Cold Neutrons
M. Yamada, H. Fujisawa, M. Ichikawa, Y. Iwashita, T. Sugimoto, H. Tongu (Kyoto ICR, Uji, Kyoto), T. Yoshioka (ICEPP, Tokyo), T. Oku, K. Sakai, T. Shinohara, J. Suzuki (JAEA, Ibaraki-ken), T. Ino, K. Mishima, T. Morishima, S. Mutou, H.M. Shimizu, K. Taketani (KEK, Ibaraki), Y. Seki (Kyoto University, Kyoto), K. Hirota, Y. Otake, H. Sato (RIKEN, Wako, Saitama), Y. Kamiya, S. Kawasaki, S. Komamiya, H. Otono, S. Yamashita (University of Tokyo, Tokyo)

MOP080 - MM-Wave High Gradient Planar Accelerating Structure Study
K. Jin (USTC/NSRL, Hefei, Anhui)

MOP081 - Profile of Ion Beam Transportation in Linear Induction Accelerator
K. Zhang (CAEP/IFP, Mainyang, Sichuan)

MOP082 - Multipacting Simulation in RF Structures
N.P. Sobenin, M.A. Gusarova, V.I. Kaminsky, S.V. Kutsaev, M.V. Lalayan (MEPhI, Moscow), L.V. Kravchuk (RAS/INR, Moscow)

MOP083 - Analysis of Input Coupler Asymmetry Influence on Beam Dynamics in Accelerators with Superconducting Cavities
N.P. Sobenin, A.A. Krasnov, S.V. Kutsaev, M.V. Lalayan, V.A. Makarov (MEPhI, Moscow), A.A. Zavadtsev (Introscan, Moscow), V.I. Shvedunov (MSU, Moscow)

MOP084 - Nonlinear Effects of Ion Focusing in Array of Independent Cavities
E.S. Masunov, A.V. Samoshin (MEPhI, Moscow)

MOP085 - Calculation of ADS Targets with GEANT4
Y.A. Svistunov (NIIEFA, St. Petersburg), I.V. Kudinovich (AN Krylov SRI, St. Petersburg), R.S. Kolevatov (Saint-Petersburg State University, Saint-Petersburg)

MOP086 - End to End Beam Dynamics and RF Error Studies for Linac4
G. Bellodi, M. Eshraqi, J.-B. Lallement, S. Lanzone, A.M. Lombardi, E.Zh. Sargsyan (CERN, Geneva), R. Duperrier, D. Uriot (CEA, Gif-sur-Yvette)

MOP087 - Status of Longitudinal Beam Dynamics Studies in CTF3
H. Shaker, A.E. Dabrowski (CERN, Geneva)

MOP088 - Particle Dynamics Calculations and Emittance Measurements at the FETS
J.K. Pozimski, S. Jolly (Imperial College of Science and Technology, London), C. Gabor, D.C. Plostinar (STFC/RAL/ASTeC, Chilton, Didcot, Oxon), M.A. Clarke-Gayther, D.C. Faircloth, S.R. Lawrie, A.P. Letchford (STFC/RAL/ISIS, Chilton, Didcot, Oxon), J.J. Back (University of Warwick, Coventry)

MOP089 - Beam Dynamics and Wake-field Simulations for High Gradient ILC Linac Cavities
R.M. Jones, C.J. Glasman (UMAN, Manchester)

MOP090 - Globalised Scattering Matrix Simulations of Wakefields in Superconducting Cavities for XFEL and ILC
R.M. Jones, I.R.R. Shinton (UMAN, Manchester)

MOP091 - End-to-End Simulations of the SNS Linac Using TRACK
B. Mustapha, P.N. Ostroumov (ANL, Argonne, Illinois), D.-O. Jeon (ORNL, Oak Ridge, Tennessee)

MOP092 - Monte-Carlo Simulation of Touschek Effects Inside a Linac Beam
A. Xiao (ANL, Argonne, Illinois)

MOP093 - Study of IBS Effects for High-Brightness Linac Beams
A. Xiao (ANL, Argonne, Illinois)

MOP094 - Beam Dynamics Simulations for Linear Accelerators on the BG/P supercomputer at ANL

J. Xu, V.N. Aseev, B. Mustapha, P.N. Ostroumov (ANL, Argonne, Illinois)

MOP096 - Bend-Induced Phase Space Dilution Due to Collective Effects in Medium Energy Electron Accelerators
I.V. Pogorelov (Tech-X, Boulder, Colorado), P. Piot (Fermilab, Batavia, Illinois), D. Mihalcea (Northern Illinois University, DeKalb, Illinois)

MOP097 - Orthogonal Basis Function Approximations of Particle Distributions in Numerical Simulations of Beams
B. Terzic (Northern Illinois University, DeKalb, Illinois)

MOP098 - The Open Architecture Software Integration System (OASIS) for Creating PBO Lab Modules
G.H. Gillespie, W. Hill (G.H. Gillespie Associates, Inc., Del Mar, California)

MOP099 - An Innovative Graphic User Interface for PARMILA 2
G.H. Gillespie, W. Hill (G.H. Gillespie Associates, Inc., Del Mar, California)

MOP100 - Beam Dynamics Studies for the FRIB Driver Linac
Q. Zhao, M. Doleans, D. Gorelov, F. Marti, T.P. Wangler, X. Wu, R.C. York (NSCL, East Lansing, Michigan)

MOP101 - Simulation of Emittance Growth Using the UAL String Space Charge Model
R.M. Talman (CESR-LEPP, Ithaca, New York), N. Malitsky (BNL, Upton, Long Island, New York)

MOP102 - Electron-Beam Dynamics in the DARHT-II Linear-Induction Accelerator
C. Ekdahl, E.O. Abeyta, P. Aragon, R.D. Archuleta, G.V. Cook, D. Dalmas, K. Esquibel, R.J. Gallegos, R.W. Garnett, J.F. Harrison, E.B. Jacquez, J. Johnson, B.T. McCuistian, N. Montoya, S. Nath, K. Nielsen, D. Oro, L.J. Rowton, M. Sanchez, R.D. Scarpetti, M. Schauer, G.J. Seitz, H.V. Smith, R. Temple (LANL, Los Alamos, New Mexico), H. Bender, W. Broste, C. Carlson, D. Frayer, D. Johnson, C.-Y. Tom, C.P. Trainham, J.T. Williams (NSTec, Los Alamos, New Mexico), B.A. Prichard, M.E. Schulze (SAIC, Los Alamos, New

Mexico), T.C. Genoni, T.P. Hughes, C.H. Thoma (Voss Scientific, Albuquerque, New Mexico)

MOP103 - Artificial Intelligence Research in Particle Accelerator Control Systems for Beam Line Tuning
M. Pieck (LANL, Los Alamos, New Mexico)

MOP104 - Parallel 3D Finite Element Particle-In-Cell Code for High-Fidelity RF Gun Simulations
A.E. Candel, A.C. Kabel, K. Ko, L. Lee, Z. Li, C. Limborg-Deprey, C.-K. Ng, G.L. Schussman, R. Uplenchwar (SLAC, Menlo Park, California)

MOP105 - Beam Dynamics and Wake-field Simulations for the CLIC Main Linacs
R.M. Jones (SLAC, Menlo Park, California), V.F. Khan (UMAN, Manchester)

MOP106 - Prediction of $4\nu = 1$ Resonance of a High Intensity Linac
D.-O. Jeon (ORNL, Oak Ridge, Tennessee), G. Franchetti, L. Groening, I. Hofmann (GSI, Darmstadt)

MOP107 - Transverse Matching of the SNS Linac Based on Profile Measurements
D.-O. Jeon (ORNL, Oak Ridge, Tennessee), P. Chu (SLAC, Menlo Park, California)

MOP108 - Phase Law of a High Intensity Proton Superconducting Linac
D.-O. Jeon, J. Galambos (ORNL, Oak Ridge, Tennessee)

MOP109 - TRIUMF ISAC II Superconducting LINAC Cryogenic Control System
R. Keitel, D. Dale, T. Howland, H. Hui, K. Langton, M. LeRoss, R.B. Nussbaumer, K. Pelzer, J.E. Richards, E. Tikhomolov (TRIUMF, Vancouver)

MOP110 - Precise Control of Cooling Water System for Stabilization of 125 MeV Linac at LEBRA
T. Sakai, M. Inagaki, T. Kuwada, I. Sato (Nihon University,), K. Hayakawa, Y. Hayakawa, K. Nakao, K. Nogami, T. Tanaka (LEBRA, Funabashi)

MOP111 - Controls Systems for Linac Test Facilities at Fermilab
J.F. Patrick, S.L. Lackey (Fermilab, Batavia, Illinois)

MOP112 - The DARHT Data Acquisition, Archival, Analysis, and Instrument Control System (DAAAC), and Network Infrastructure
R.D. Archuleta (LANL, Los Alamos, New Mexico)

MOP113 - The Dual Axis Radiographic Hydrodynamic Test (DARHT) Facility Personnel Safety System (PSS) Control System
E.B. Jacquez (LANL, Los Alamos, New Mexico)

Tuesday Oral Session, TU1
Lecture Theatre 08:30
Session Chair: Yoshishige Yamazaki

[08:30]
TU101 - Unique Features of the J-PARC Linac and Its Performance - Lessons Learnt
A. Ueno (KEK/JAEA, Ibaraki-Ken)
The J-PARC linac has been successfully commissioned up to its design energy and almost design peak intensity. The unique methods and hardware features adopted in the J-PARC linac, such as the Cs-free H- ion source, macro-pulse generation method, stable one-shot operation method, rf chopper system related with the J-PARC 30mA-RFQ (Radio Frequency Quadrupole linac) design and its operation parameter, one-turn injection method into the following J-PARC RCS (Rapid Cycling Synchrotron), transverse matching using TRACE3D PMQ (Permanent Magnet Quadrupole) elements approximating the fringe field effects of the electro-quadrupole magnets, 2 cavity behavior of SDTL (Separated Drift tube Linac) fed with one Klystron and so on, will be reported in this talk.

[09:00]
TU102 - Status of the Construction of the SPIRAL2 Accelerator at GANIL
T. Junquera (IPN, Orsay)
The superconducting linac for the SPIRAL2 radioactive ion beam facility at GANIL is in the construction phase. The prototype components have been constructed and are being tested. A status report on the activities and future plans will be given.

[09:30]
TU103 - CERN Linac Upgrade Activities
A.M. Lombardi (CERN, Geneva)
In its June 2007 session the CERN Council has approved the White Paper, which includes construction of a 160 MeV H- linear accelerator called LINAC4, and the study of a 4 GeV Superconducting Proton Linac (SPL). LINAC4 will initially replace LINAC2 as the injector to the PS Booster, improving its performance up to the levels required for producing the ultimate LHC luminosity. In a later stage, LINAC4 is intended to be-

come the front-end of SPL in a renewed injection chain for the LHC, which could be progressively constructed over the next decade. After briefly introducing the motivations and layout of the new injector chain, the talk will present the characteristics of the new linacs and give an overview of their main technical features and the R&D activities pursued within the HIPPI Joint Research Activity.

[10:00]

TU104 - Laser Acceleration of Quasi-Monoenergetic MeV-GeV Ion Beams

J.C. Fernandez (LANL, Los Alamos, New Mexico)

Laser interactions with thin solid targets can produce sheath fields of tens of TV/m, which have been used to accelerate ions to several MeV with ps pulse lengths, high currents, and low transverse emittance. While previous results have had 100% energy spread, recent experiments using foils coated with a few monolayers have produced quasi-monoenergetic beams with 17% energy spread near 3 MeV. Such beams may be of interest as injectors or sources. Simulations show the potential for acceleration to hundreds of MeV or GeV energies using very thin foils.

Tuesday Oral Session, TU2
Lecture Theatre 11:00
Session Chair: Chris Adolphsen

[11:00]

TU201 - Linac R&D for the ILC Technical Design Report

M.C. Ross (Fermilab, Batavia, Illinois)

The International Linear Collider (ILC) Technical Design Report (TDR) is scheduled for publication in 2012. The TDR will include an updated ILC baseline technical design description, results from critical R&D programs in support of key parameter choices, and one or more models for a Project Implementation Plan with an associated value estimate. The focus of linac R&D is to: 1) achieve the specified superconducting rf cavity accelerating gradient of 35 MV/m with a corresponding production yield, 2) design and test cryomodule assemblies that include “plug-compatible” sub-components with specified interfaces, and 3) demonstrate system performance with nominal ILC high intensity beams. In keeping with the international nature of the

project, R&D is underway at ILC partner institutions with results and infrastructure that are shared throughout the project effort. This paper describes the technical challenges to be addressed and summarizes ongoing activities and plans.

[11:20]

TU202 - ILC Siting in Moscow Region Near Dubna and Linear Accelerator Activities at JINR

G. Shirkov, Ju. Boudagov, Yu.N. Denisov, I.N. Meshkov, A.N. Sissakian, G.V. Trubnikov (JINR, Dubna, Moscow Region)

The report presents the development of investigations on ILC siting in the Dubna region and ILC related activity at JINR. The report will describe the fields of activities ongoing to support the ILC at JINR. In addition, other linear accelerator activities at JINR will be summarized.

[11:40]

TU203 - Status and Future Prospects for CLIC

S. Doebert (CERN, Geneva)

The Compact Linear Collider (CLIC) is studied by a growing international collaboration. Main feasibility issues should be demonstrated until 2010 with the CLIC Test Facility (CTF3) constructed at CERN. The CLIC design parameters have recently been changed significantly. The rf frequency has been reduced from 30 GHz to 12 GHz and the loaded accelerating gradient from 150 MV/m to 100 MV/m. The consequences and logic of these changes will be reviewed and coherent parameter sets for a 3 TeV and a 500 GeV machine will be presented. The status and perspectives of the CLIC feasibility study will be presented with a special emphasis on experimental results obtained with CTF3 towards drive beam generation as well as progress on the high gradient accelerating structure development. The frequency change allows using high power X band test facilities at SLAC and KEK for accelerating structure testing at 11.4 GHz. The design gradient of 100 MV/m has been achieved in a recent test at SLAC with a very low breakdown-rate.

[12:00]

TU204 - Performance Review of L-Band and S-Band Multi-Beam Klystrons

Y.H. Chin (KEK, Ibaraki)

In the last couple of years, great achievements have been realized through world-wide developments of

multi-beam klystrons (MBK) in the L-band and S-band. These MBKs are developed by industries such as Toshiba, Thales and CPI for the European X-FEL project or at the Naval Research Lab or by the Chinese Academy of Sciences for high-power, low-voltage radar systems. Some of them are already in operation at full specifications and are commercially available. The MBKs are superior to conventional single-beam klystrons through their ability to increase the output power dramatically while the operating voltage can be kept at a similar level. This talk will review the performances of these multi-beam klystrons, their design features, and future development plans.

Tuesday Oral Session, TU3
Lecture Theatre 13:40
Session Chair: John Staples

[13:40]
TU301 - Positron Sources and Propagation in Plasma Wakefield Accelerators
P. Muggli (UCLA, Los Angeles, California)
Plasma-based accelerators are one of the emerging technologies that could revolutionize e-/e+ colliders, significantly reducing their size and cost by operating at multi-GeV/m accelerating gradients. Proof-of-principle experiments at SLAC have demonstrated the energy doubling of 42 GeV incoming e- in a plasma only ≈85 cm long*, corresponding to an unloaded gradient of ≈50 GeV/m. Plasma wakes driven by e+ bunches are different from those driven by e- bunches. The acceleration of e+ in plasmas has been demonstrate,** but the acceleration of high-quality e+ beams is challenging. Measurements show that single e+ bunches suffer halo formation and emittance growth when propagating through dense meter-scale, uniform plasmas.*** Advanced schemes, such as hollow plasma channels, or e+ bunch acceleration on the wake driven by a e bunch, may have to be used in a future plasma-based linear collider. Experimental results obtained with e+ beams in plasmas will be reviewed and compared to those obtained with e- beams. Future experiments including a new scheme to produce a drive e bunch closely followed by a witness e+ bunch appropriate for PWFA experiments will also be discussed.
*I. Blumenfeld et al., Nature 445, 741-744 (15 February 2007).

**B.E. Blue et al., Phys. Rev. Lett. 90, 214801 (2003).
***P. Muggli et al., accepted for publication in Phys. Rev. Lett. (2008).
Work Supported by US Department of Energy

[14:00]
TU302 - Control, Stability and Staging in Laser Wakefield Accelerators
D. Panasenko (LBNL, Berkeley, California)
Laser driven plasma wakefields have recently accelerated electron beams with quasi-monoenergetic energy distributions and with gradients of ~100 GV/m. Stabilization and optimization of beam quality are now essential. Recent LBNL experiments have demonstrated control of self trapping, resulting in reproducible bunches at 0.5 GeV. Further optimization has been demonstrated using plasma density gradients to control trapping, producing beams with very low absolute momentum spread at low energies. Simulations indicate that use of these beams as an injector greatly improves accelerator performance and experiments are now underway to demonstrate such staging, which will be a crucial technology for laser driven linacs. This talk will cover recent progress in LWFAs to obtain more reproducible, higher quality beams and also cover staging prospects for high energy laser linacs.

Tuesday Poster Session, TUP
Lecture Theatre 14:20
Carson Hall 15:20
Session Chair: Marion White

TUP001 - Upgrade of 250 MeV Linac at CLS
X. Shen (CLS, Saskatoon, Saskatchewan)

TUP002 - Accelerator Design for MW-Class Electron Linac for RIBs and Materials Science
S.R. Koscielniak, F. Ames, I.V. Bylinskii, R.E. Laxdal, M. Marchetto, A.K. Mitra, I. Sekachev, V.A. Verzilov (TRIUMF, Vancouver)

TUP003 - Proposal for 15 MeV Superconducting Electron Linac for DEINOS Project
J.-L. Lemaire, P. Balleyguier, D. Guilhem, V. Le Flanchec, M.M. Millerioux (CEA, Bruyeres-le-Chatel), S.J. Pichon (CEA, BRUYERES-le-CHATEL)

TUP004 - Status of the CTF3 Probe Beam Linac CALIFES
F. Peauger, D. Bogard, G. Cheymol, P. Contrepois, A. Curtoni, G. Dispau, M. Dorlot, W. Farabolini, M. Fontaine, P. Girardot, F. Harrault, J.L. Jannin, T. Lerch, P.-A. Leroy, M. Luong, A. Mosnier, F. Orsini, C. Simon (CEA, Gif-sur-Yvette), G. McMonagle, L. Rinolfi (CERN, Geneva), R. Roux (LAL, Orsay)

TUP005 - The New Single Bunch Injector for ELSA
F. Klarner, W. Hillert (ELSA, Bonn), S. Aderhold (DESY, Hamburg)

TUP006 - Improving the Superconducting Cavities and Operational Findings at the S-DALINAC
R. Eichhorn, A. Araz, M. Brunken, J. Conrad, H.-D. Graf, M. Hertling, F. Hug, C. Klose, M. Konrad, T. Kuerzeder, M. Platz, A. Richter, S. Sievers, T. Weilbach (TU Darmstadt, Darmstadt)

TUP007 - The Power and Polarisation Upgrade Project at the S-Dalinac Injector
R. Eichhorn, R. Barday, M. Brunken, J. Conrad, C. Eckardt, J. Enders, H.-D. Graf, C. Hessler, T. Kuerzeder, M. Platz, Y. Poltoratska, M. Roth, S. Sievers (TU Darmstadt, Darmstadt), J.D. Fuerst (ANL, Argonne, Illinois), K. Aulenbacher (IKP, Mainz), W. Ackermann, W.F.O. Muller, T. Weiland (TEMF, Darmstadt)

TUP008 - Recent Changes to the e-/e+ Injector (Linac II) at DESY
M. Huening, M. Schmitz (DESY, Hamburg)

TUP009 - Development of Timing and Control Systems for Fast Beam Switch at KEK 8 GeV Linac
K. Furukawa, M. Satoh, T. Suwada (KEK, Ibaraki), T. Kudou, S. Kusano (MELCO SC, Tsukuba)

TUP010 - Pulse-to-Pulse Mode Switching of KEKB Injector Linac
T. Kamitani (KEK, Ibaraki)

TUP011 - Observations of Two Microbunches After a 180-Degree Arc Section at the KEKB Linac
Y. Ogawa, M. Yoshida (KEK, Ibaraki)

TUP012 - Design and Performance of Optics for Multi-energy Injector Linac
Y. Ohnishi (KEK, Ibaraki)

TUP013 - Present Status of the KEK Injector Upgrade for the Fast Beam-Mode Switch
M. Satoh (KEK, Ibaraki)

TUP014 - Present Status of the BEPCII linac
G. Pei (IHEP Beijing, Beijing)

TUP015 - Alignment Techniques for DRAGON-I LIA
Z. Dai (CAEP/IFP, Mainyang, Sichuan)

TUP016 - Status of an Automatic Steering for the CLIC Test Facility 3
E. Adli, S. Bettoni, R. Corsini, A.E. Dabrowski, D. Schulte, H. Shaker, P.K. Skowronski, F. Tecker, R. Tomas (CERN, Geneva)

TUP017 - Design of the Tail Clipper Collimator for CTF3
R. Chamizo, H.-H. Braun, N.C. Chritin, D. Grenier, J. Hansen, Y. Kadi, L. Massidda, T. Otto, RR. Rocca, R. Zennaro (CERN, Geneva)

TUP018 - A 150 MeV Pulse Electron Linac with an Average Current 1 mA
V.A. Kushnir, M.I. Ayzatskiy, V.N. Boriskin, A.N. Dovbnya, I.V. Khodak, S.G. Kononenko, V.V. Mytrochenko, S.A. Perezhogin, Y.D. Tur (NSC/KIPT, Kharkov)

TUP019 - Injector of Intense Electron Beam
V.V. Mytrochenko, M.I. Ayzatskiy (NSC/KIPT, Kharkov)

TUP020 - Commissioning the DARHT-II Accelerator Downstream Transport and Target
M.E. Schulze, B.A. Prichard (SAIC, Los Alamos, New Mexico), E.O. Abeyta, R.D. Archuleta, J. Barraza, D. Dalmas, C. Ekdahl, W.L. Gregory, J.F. Harrison, E.B. Jacquez, J. Johnson, P.S. Marroquin, B.T. McCuistian, R.R. Mitchell, N. Montoya, S. Nath, K. Nielsen, R.M. Ortiz, L.J. Rowton, R.D. Scarpetti, M. Schauer, G.J. Seitz (LANL, Los Alamos, New Mexico), R. Anaya, G.J. Caporaso, F.W. Chambers, Y.-J. Chen, S. Falabella, G. Guethlein, B.A. Raymond, R.A. Richardson, J.A. Watson, J.T. Weir (LLNL, Livermore, California), H. Bender, W. Broste, C. Carlson, D. Frayer, D. Johnson, C.-Y. Tom (NSTec, Los Alamos, New Mexico)

TUP021 - Digitally Controlled High Availability Power Supply
D.J. MacNair (SLAC, Menlo Park, California)

TUP022 - RF Control and Longitudinal Beam Stability in Energy Recovery Linacs
A. Neumann, M. Abo-Bakr, J. Knobloch (BESSY GmbH, Berlin)

TUP023 - Optimization of Lattice for an ERL Upgrade to the Advanced Photon Source
M. Borland, V. Sajaev (ANL, Argonne, Illinois)

TUP024 - Growth of Density Modulations in an ERL Light Source Due to Coherent Synchrotron Radiation and Longitudinal Space Charge
M. Borland (ANL, Argonne, Illinois)

TUP025 - ERL Staging
K.C. Harkay, Y.-C. Chae (ANL, Argonne, Illinois)

TUP026 - Exploring Benefits of Using RF Deflection for Short X-Ray Pulse Generation for an Energy-Recovery Linac Upgrade to the Advanced Photon Source
V. Sajaev, M. Borland (ANL, Argonne, Illinois)

TUP027 - Simulation of Linear Lattice Correction of an Energy-Recovery Linac Designed for an APS Upgrade
V. Sajaev (ANL, Argonne, Illinois)

TUP028 - Status of High Current R&D Energy Recovery Linac at Brookhaven National Laboratory
A. Kayran, I. Ben-Zvi, V. Litvinenko, E. Pozdeyev (BNL, Upton, Long Island, New York)

TUP029 - Electron Linac Based Coherent Radiation Light Source Project at OPU
S. Okuda, T. Kojima, Y. Sakamoto, R. Taniguchi (Osaka Prefecture University, Sakai)

TUP030 - Enhancements to the Diamond Light Source Pre-Injector Linac
C. Christou, V.C. Kempson (Diamond, Oxfordshire)

TUP031 - Normal Conducting Options for the UK's New Light Source Project
C. Christou, R. Bartolini, J.H. Han, J. Kay, R.P. Walker

(Diamond, Oxfordshire)

TUP032 - Simulations on Impact of the 3.9 GHz RF Section on the Multi Bunch Emittance at FLASH
Y.A. Kot, T. Limberg (DESY, Hamburg)

TUP033 - Optics Solutions for the XFEL Injector
Y.A. Kot, T. Limberg (DESY, Hamburg)

TUP034 - Status of the 3rd Harmonic Systems for FLASH and XFEL in Summer 2008
E. Vogel, W. Decking, M. Dohlus, M. Huening, J. Iversen, K. Jensch, G. Kreps, T. Limberg, A. Matheisen, W.-D. Moller, A. Schmidt, W. Singer (DESY, Hamburg), H.T. Edwards, E.R. Harms, T.N. Khabiboulline (Fermilab, Batavia, Illinois), A. Bosotti, P. Pierini, D. Sertore (INFN/LASA, Segrate (MI))

TUP035 - New Experimental Results from PITZ
F. Stephan, J.W. Baehr, C.H. Boulware, H.-J. Grabosch, M. Hanel, Ye. Ivanisenko, M. Krasilnikov, B. Petrosyan, S. Rimjaem, T.A. Scholz, R. Spesyvtsev (DESY Zeuthen, Zeuthen), R. Richter (BESSY GmbH, Berlin), S. Lederer (DESY, Hamburg), G. Asova [on leave], L. Staykov [on leave] (INRNE, Sofia), A. Shapovalov [on leave] (MEPhI, Moscow), J. Roensch (Uni HH, Hamburg), L. Hakobyan [on leave], M.K. Khojoyan [on leave] (YerPhI, Yerevan)

TUP036 - Upgrade Program of the FERMI@ ELETTRA Linac: Status and Perspectives
G. D'Auria (ELETTRA, Basovizza, Trieste)

TUP037 - First Characterization of the FERMI@ ELETTRA Photoinjector
G. D'Auria (ELETTRA, Basovizza, Trieste)

TUP038 - MIR-FEL with 4.5-Cell Thermionic RF-Gun
T. Kii, K. Higashimura, R. Kinjo, K. Masuda, H. Ohgaki, H. Zen (Kyoto IAE, Kyoto)

TUP039 - Status of the LINAC-800 Construction at JINR
G.V. Trubnikov, N. Balalykin, A.G. Kobets, V. Kobets, I.N. Meshkov, G. Shirkov, G.I. Sidorov (JINR, Dubna, Moscow Region)

TUP040 - Injector, Bunch Compressors, and Linac for 6 GeV PSI XFEL Project
Y. Kim, A. Adelmann, R.J. Bakker, M. Dehler, R. Ganter, T. Garvey, C. Gough, C.P. Hauri, R. Ischebeck, F. Le Pimpec, A. Oppelt, M. Paraliev, M. Pedrozzi, J.-Y. Raguin, L. Rivkin, T. Schietinger, V. Schlott, B. Steffen, A. Streun, A.F. Wrulich (PSI, Villigen)

TUP041 - Superconducting Options for the UK's New Light Source Project
P.A. McIntosh, R. Bate, C.D. Beard, D.M. Dykes, S.M. Pattalwar (STFC/DL/ASTeC, Daresbury, Warrington, Cheshire)

TUP042 - High Repetition Rate Electron Injectors for FEL Based Next Generation Light Sources
B.L. Militsyn, C.D. Beard, J.W. McKenzie (STFC/DL/ASTeC, Daresbury, Warrington, Cheshire)

TUP043 - Development of a Beam Loss Monitor System for the LCLS Undulator Beam Line
W. Berg, J.C. Dooling, A. Pietryla, B.X. Yang (ANL, Argonne, Illinois), H.-D. Nuhn (SLAC, Menlo Park, California)

TUP044 - The NPS-FEL Injector Upgrade
J.W. Lewellen (ANL, Argonne, Illinois), W. Graves (MIT, Middleton, Massachusetts; NPS, Monterey, California), W.C. Armstrong, W.B. Colson, S.P. Niles (NPS, Monterey, California), T.L. Grimm (Niowave, Inc., Lansing, Michigan), T.I. Smith (Stanford University, Stanford, Californiа; NPS, Monterey, California)

TUP045 - Generation of Femtosecond Bunch Trains Using a Longitudinal-to-Transverse Phase Space Manipulation
Y.-E. Sun, P. Piot (Fermilab, Batavia, Illinois)

TUP046 - Linac Design for an Array of Soft X-Ray Free Electron Lasers
A. Zholents, G. Penn, J. Qiang, M. Venturini, R.P. Wells (LBNL, Berkeley, California), E. Kur (UCB, Berkeley, California)

TUP047 - Manipulating the Two-Stream Instability for Efficient Terahertz Generation
K. Bishofberger, B.E. Carlsten, R. Faehl (LANL, Los Alamos, New Mexico)

TUP048 - Identifying Jitter Sources in the LCLS Linac
F.-J. Decker, R. Akre, W.S. Colocho, Y.T. Ding, D. Dowell, P. Emma, J.C. Frisch, A. Gilevich, P. Hering, Z. Huang, R.H. Iverson, K.D. Kotturi, A. Krasnykh, C. Limborg-Deprey, H. Loos, H.-D. Nuhn, D.F. Ratner, J.L. Turner, J.J. Welch, W.E. White, J. Wu (SLAC, Menlo Park, California)

TUP049 - The Impact of the Electron Bunch Initial Energy Profile on a Seeded Free Electron Laser Performance
J. Wu, A. Chao (SLAC, Menlo Park, California), J. Bisognano (UW-Madison/SRC, Madison, Wisconsin)

TUP050 - Design and Optimization of Electron Bunch Acceleration and Compression
J. Wu, P. Emma (SLAC, Menlo Park, California), R.A. Bosch, K. J. Kleman (UW-Madison/SRC, Madison, Wisconsin)

TUP051 - Design of Microwave Undulator Cavity
M. Yeddulla, S.G. Tantawi (SLAC, Menlo Park, California)

TUP052 - Status of the NPS Free-Electron Laser
J.W. Lewellen, W.C. Armstrong, W.B. Colson, S.P. Niles (NPS, Monterey, California), T.I. Smith (Stanford University, Stanford, Califormia; NPS, Monterey, California)

TUP053 - Experimental Characterization and Optimization of High-brightness Electron Beam at the NSLS SDL
X. Yang, J.B. Murphy, H.J. Qian, S. Seletskiy, Y. Shen, X.J. Wang (BNL, Upton, Long Island, New York)

TUP054 - Development of Continuously Adjustable Permanent Magnet Quadrupole for ATF2
T. Sugimoto, M. Ichikawa, Y. Iwashita, I. Kazama, M. Yamada (Kyoto ICR, Uji, Kyoto), T. Tauchi (KEK, Ibaraki), C.M. Spencer (SLAC, Menlo Park, California)

TUP055 - Optimum Frequency and Gradient for the CLIC Main Linac Accelerating Structure
A. Grudiev, H.-H. Braun, D. Schulte, W. Wuensch (CERN, Geneva)

TUP056 - Beam Optics Studies and Commission-

ing Status of CTF3
P.K. Skowronski, S. Bettoni, R. Corsini, S. Doebert, F. Tecker (CERN, Geneva), D. Alesini, C. Biscari (INFN/LNF, Frascati (Roma))

TUP057 - Design and Fabrication of CLIC Test Structures
R. Zennaro, A. Grudiev, G. Riddone, W. Wuensch (CERN, Geneva), T. Higo (KEK, Ibaraki), S.G. Tantawi, J.W. Wang (SLAC, Menlo Park, California)

TUP058 - A Kicker Driver for the International Linear Collider
F.O. Arntz, M.P.J. Gaudreau, A. Kardo-Sysoev, M.K. Kempkes, A. Krasnykh (Diversified Technologies, Inc., Bedford, Massachusetts)

TUP059 - Broadband HOM Heating in the ILC Linac Beam line
K.L.F. Bane, C. Adolphsen, Z. Li, C.-K. Ng, L. Xiao (SLAC, Menlo Park, California)

TUP060 - Operating Experience of the 10 MeV Industrial RF Electron linac at Mumbai
A.R. Tillu, D.P. Chakravarthy, L.M. Gantayet, S.R. Ghodke, D. Jayaprakash, R.L. Mishra, M.K. Mukesh Kumar (BARC, Mumbai), R. Barnwal, D. Bhattacharjee, S. Chandan, R.B. Chavan, K. Dixit, K.C. Mittal, V.T. Nimje, V. Sharma, V. Yadav (BARC-EBC, Mumbai), A.P. Bhagwat, S.Y. Kulkarni (SAMEER, Mumbai)

TUP061 - Indian Experience of Development of Electron Linacs for Industrial Applications
K.C. Mittal (BARC-EBC, Mumbai)

TUP062 - Design and Development of 30 MeV, 3 kW RF Electron Linac as a Neutron Generator
V.T. Nimje, K. Dixit, K.C. Mittal (BARC-EBC, Mumbai), L.M. Gantayet (BARC, Mumbai)

TUP063 - Development of a New Highly Bright X-ray Generator
S. Ohsawa, M. Ikeda, N. Sakabe, T. Sugimura (KEK, Ibaraki)

TUP064 - Nuclear Reaction Analysis by Using Quasi-Elastic Scattering of Ultra Low Intensity Electron Beam
R. Taniguchi, T. Kojima, S. Okuda (Osaka Prefecture

University, Sakai)

TUP065 - Demonstration of Multi-Pulse X-ray Generation via Laser-Compton Scattering Using Pulsed-Laser super-cavity
K. Sakaue, M. Washio (RISE, Tokyo), S. Araki, M.K. Fukuda, Y. Higashi, Y. Honda, T. Taniguchi, N. Terunuma, J. Urakawa (KEK, Ibaraki), N. Sasao (Kyoto University, Kyoto)

TUP066 - Commissioning of 10 MeV L-band Electron Linac for Industrial Applications
S.H. Kim, M.-H. Cho, W. Namkung, H.R. Yang (POSTECH, Pohang, Kyungbuk), S.D. Jang, S.H. Kim, S.J. Kwon, J.-S. Oh, S.J. Park, Y.J. Park, Y. G. Son (PAL, Pohang, Kyungbuk)

TUP067 - Using Electron Accelerators for Atomic Energy of Ukraine
A.N. Dovbnya (NSC/KIPT, Kharkov)

TUP068 - Project of a Neutron Source Based on the Sub-Critical Assembly Driven by Electron Linear Accelerator
I.M. Karnaukhov, A.N. Dovbnya, V.E. Krasnorutzkiy, I.M. Neklyudov, A.Y. Zelinsky (NSC/KIPT, Kharkov), M.Y.A. Gohar (ANL, Argonne, Illinois)

TUP069 - Low Energy Photoemission Electron Source for Applications in THz Radiation Production and Time-Resolved Electron Microscopy
N. Vinogradov, P. Piot (Northern Illinois University, DeKalb, Illinois), J.W. Lewellen, J. Noonan (ANL, Argonne, Illinois)

TUP070 - New Technique for Beam Halo Measurements
N. Vinogradov, A.S. Dyshkant, P. Piot (Northern Illinois University, DeKalb, Illinois), J.G. Power (ANL, Argonne, Illinois)

TUP071 - The ISAC-II SC Linac Over Current Monitoring System
A.K. Mitra, K. Langton, R.E. Laxdal, M. Marchetto, W.R. Rawnsley (TRIUMF, Vancouver)

TUP072 - AIRIX Diagnostic Devices for Focal Spot Size and Dose Measurements
O. Pierret (CEA, Pontfaverger-Moronvilliers)

TUP073 - Tailoring the Emittance of a Charged Particle Beam with a Tunnel Emittance Meter
R. Becker (IAP, Frankfurt am Main)

TUP074 - Commissioning of the HITRAP Decelerator Using a Single-Shot Pepper Pot Emittance Meter
J. Pfister, R. Noerenberg, U. Ratzinger (IAP, Frankfurt am Main), W. Barth, L.A. Dahl, P. Forck, O.K. Kester, W. Quint, T. Stoehlker (GSI, Darmstadt)

TUP075 - DITANET: A European Initiative in the Development of Beam Instrumentation for Future Particle Accelerators
C.P. Welsch (GSI, Darmstadt; KIP, Heidelberg; MPI-K, Heidelberg)

TUP076 - Preliminary Design of a Beam Halo Monitor with a High Dynamic Range
J. Egberts, S. Artikova (MPI-K, Heidelberg), E. Bravin, T. Lefevre (CERN, Geneva), C.P. Welsch (KIP, Heidelberg; MPI-K, Heidelberg; GSI, Darmstadt)

TUP077 - Development of Screen Monitor with a Spatial Resolution of Ten Micro-meters for XFEL/SPring-8
K. Yanagida, H. Tomizawa, A. Yamashita (JASRI/SPring-8, Hyogo-ken), S.I. Inoue, Y. Otake (RIKEN/SPring-8, Hyogo)

TUP078 - Development of Integrator Circuit for Charge Monitoring
K. Yanagida, H. Hanaki, S. Suzuki (JASRI/SPring-8, Hyogo-ken)

TUP079 - Operational Performance of a New Beam-Charge Interlock System for Radiation Safety at the KEKB Injector Linac
T. Suwada, K. Furukawa, E. Kadokura, M. Satoh (KEK, Ibaraki)

TUP080 - Numerical Study of a New Bunch Length Monitor Utilizing a Detection of Electromagnetic Fields in Millimeter-Wave Region
T. Suwada (KEK, Ibaraki)

TUP081 - Transient Beam Loading Compensation in CTF3
A.E. Dabrowski, S. Bettoni, H.-H. Braun, E. Bravin, R.

Corsini, S. Doebert, C. Dutriat, T. Lefevre, P.K. Skowronski, F. Tecker (CERN, Geneva)

TUP082 - Bunch Length Measurements in CTF3
A.E. Dabrowski, S. Bettoni, H.-H. Braun, R. Corsini, S. Doebert, T. Lefevre, H. Shaker, P.K. Skowronski, F. Tecker (CERN, Geneva), M. Velasco (NU, Evanston)

TUP083 - Diagnostics and Measurement Strategy for the CERN Linac 4
K. Hanke, G. Bellodi, J.-B. Lallement, A.M. Lombardi, B. Mikulec, M. Pasini, U. Raich, E.Zh. Sargsyan (CERN, Geneva), H. Hori (MPQ, Garching, Munich)

TUP084 - Emittance Measurement Instrument for a High Brilliance H- Ion Beam
C. Gabor, C.R. Prior (STFC/RAL/ASTeC, Chilton, Didcot, Oxon), J.K. Pozimski (STFC/RAL, Chilton, Didcot, Oxon), A.P. Letchford (STFC/RAL/ISIS, Chilton, Didcot, Oxon)

TUP085 - Four-Dimensional Emittance Meter for DC Ion Beams Extracted from an ECR Ion Source
A. Kondrashev, A. Barcikowski, B. Mustapha, P.N. Ostroumov (ANL, Argonne, Illinois), N. Vinogradov (Northern Illinois University, DeKalb, Illinois)

TUP086 - Commissioning of a Dual-Sweep Streak Camera on the A0 Photoinjector
A.H. Lumpkin, J. Ruan (Fermilab, Batavia, Illinois)

TUP087 - Spectral and Charge-Dependence Aspects of Enhanced OTR Signals from a Compressed Electron Beam
A.H. Lumpkin (Fermilab, Batavia, Illinois), M. Borland, YL. Li, K. Nemeth, S.J. Pasky, N. Sereno (ANL, Argonne, Illinois)

TUP088 - Development of High Resolution Cold Cavity BPM
S. Shin, A. Lunin, G.V. Romanov, N. Solyak, L. Valerio, M. Wendt (Fermilab, Batavia, Illinois), E.-S. Kim (Kyungpook National University, Daegu)

TUP089 - Electron Beam Timing Jitter And Energy Modulation Measurements At JLab ERL
P. Evtushenko, S.V. Benson, D. Douglas, D.W. Sexton (Jefferson Lab, Newport News, Virginia)

TUP090 - Optical Diffraction Radiation Measurements at CEBAF
P. Evtushenko, A. Freyberger (Jefferson Lab, Newport News, Virginia), C. Liu (CASA, Newport News), A.H. Lumpkin (Fermilab, Batavia, Illinois)

TUP091 - Analysis and Computation with Noisy Profile Data from Charged Particle Beams
C.K. Allen, W. Blokland, S.M. Cousineau, J. Galambos (ORNL, Oak Ridge, Tennessee)

TUP092 - Laser Beam-Profile and -Energy Monitor Development at BNL for HINS
R. Connolly, S. Bellavia, W.C. Dawson, C. Degen, W. Meng, D. Raparia, T. Russo (BNL, Upton, Long Island, New York)

TUP093 - Activities on High Brilliance Photoinjectors at the Frascati Laboratories, Italy
R. Boni (INFN/LNF, Frascati (Roma))

TUP094 - Development of a Photocathode RF Gun for an L-Band Electron Linac
G. Isoyama, K. Furuhashi, S. Kashiwagi, R. Kato, M. Morio, Y. Terasawa (ISIR, Osaka), M. Kuriki (HU/AdSM, Higashi-Hiroshima), H. Hayano (KEK, Ibaraki)

TUP095 - Development of a Cs-Te Cathode RF Gun at Waseda University
Y. Kato, Y. Hama, T. Hirose, C. Igarashi, T. Kashino, K. Komiya, A. Masuda, A. Murata, K. Sakaue, T. Suzuki, M. Washio (RISE, Tokyo), R. Kuroda (AIST, Tsukuba, Ibaraki), M. Kuriki (HU/AdSM, Higashi-Hiroshima), S. Kashiwagi (ISIR, Osaka), H. Hayano, T. T. Takatomi, N. Terunuma, J. Urakawa (KEK, Ibaraki), Y. Kamiya (University of Tokyo, Tokyo)

TUP096 - RF Gun Development with Improved Parameters
V.V. Paramonov, Y.Z. Kalinin (RAS/INR, Moscow), M. Krasilnikov, T.A. Scholz, F. Stephan (DESY Zeuthen, Zeuthen), K. Floettmann (DESY, Hamburg)

TUP097 - Measurements and Modeling at the PSI-XFEL 500-kV Low-Emittance Electron Source
T. Schietinger, A. Adelmann, R.J. Bakker, R. Ganter, C. Gough, C.P. Hauri, R. Ischebeck, S. Ivkovic, Y. Kim, F. Le Pimpec, K.B. Li, P. Ming, A. Oppelt, M. Paraliev, M. Pedrozzi, V. Schlott, B. Steffen, A.F. Wrulich (PSI, Vil-

ligen), A. Andersson, S.C. Leemann (MAX-lab, Lund)

TUP098 - Analysis of Space Charge Fields Using Lienard-Wiechert Potentials and Method of Images in the RF-Free Electron Laser Photoinjector
R.M. Jones (UMAN, Manchester), W. Salah (The Hashemite University, Zarka)

TUP099 - S-band Injector Optimization for Small Transverse Emittance and High Repetition Rates
J.H. Han (Diamond, Oxfordshire)

TUP100 - Optimization of a DC Injector for an Energy Recovery Linac Upgrade to the Advanced Photon Source
Y.-E. Sun, M. Borland, K.C. Harkay, YL. Li, H. Shang (ANL, Argonne, Illinois)

TUP101 - The Photocathode R&D Program at LBNL
W. Wan, C.E. Coleman-Smith, C.M.R. Greaves, H.A. Padmore, E. Pedersoli, A. Polyakov (LBNL, Berkeley, California)

TUP103 - Analysis of Halo Formation in a DC Photoinjector
D. Mihalcea, P. Piot (Northern Illinois University, DeKalb, Illinois)

TUP104 - A High-Brightness Low-Energy Photoinjector Option for the Fermilab Electron Accelerator Facility
P. Piot, D. Mihalcea (Northern Illinois University, DeKalb, Illinois), S. Nagaitsev, Y.-E. Sun (Fermilab, Batavia, Illinois), I.V. Pogorelov (LBNL, Berkeley, California)

TUP105 - Simulations of the Upgraded Photoinjector for the 10 kW JLAB IR FEL
D. Mihalcea, P. Piot (Northern Illinois University, DeKalb, Illinois), C. Hernandez-Garcia (Jefferson Lab, Newport News, Virginia)

TUP106 - Simulation of Field-Emission Cathodes for High Current Electron Injectors
D. Mihalcea, P. Piot (Northern Illinois University, DeKalb, Illinois)

TUP107 - Longitudinal Beam Diagnostics for the ILC Injectors and Bunch Compressors
P. Piot (Fermilab, Batavia, Illinois), J.G. Power (ANL, Argonne, Illinois), C.-J. Jing (Euclid TechLabs, LLC, Solon, Ohio), A. Bracke, T.J. Maxwell, D. Mihalcea, M.M. Rihaoui (Northern Illinois University, DeKalb, Illinois)

TUP108 - Initial Measurements of the CW Normal-Conducting RF Injector
D.C. Nguyen, F.L. Krawczyk, F.A. Martinez, N.A. Moody, K.A. Young (LANL, Los Alamos, New Mexico)

TUP109 - Room Temperature Activation and Operation of an Elemental Cesium Dispenser Photocathode
N.A. Moody, D. C. Lizon, D.C. Nguyen (LANL, Los Alamos, New Mexico), K. Jensen (NRL, Washington, DC), D.W. Feldman, P.G. O'Shea (UMD, College Park, Maryland)

TUP110 - Modeling of a Low Frequency SRF Electron Gun for the Wisconsin FEL
R.A. Legg (UW-Madison/SRC, Madison, Wisconsin), P. Piot (Northern Illinois University, DeKalb, Illinois)

TUP111 - Preservation of Bunch Length in a High Charge RF Photoinjector
S. Pei, C. Adolphsen (SLAC, Menlo Park, California)

TUP112 - Laser Timing Jitter Measurements at the Fermilab A0 Photoinjector
J.K. Keung (University of Pennsylvania, Philadelphia, Pennsylvania), S. Nagaitsev, J. Ruan (Fermilab, Batavia, Illinois)

TUP113 - Emittance Exchange at the Fermilab A0 Photoinjector
T.W. Koeth (Rutgers University, Piscataway, New Jersey), H.T. Edwards, R.P. Fliller, A.H. Lumpkin, J. Ruan (Fermilab, Batavia, Illinois)

TUP114 - Ultrafast Electron Diffraction at the NSLS SDL
X.J. Wang, C.C. Kao, J.B. Murphy, S. Pjerov, Y. Shen (BNL, Upton, Long Island, New York), R.K. Li (BNL, Upton, Long Island, New York; TUB, Beijing)

TUP115 - Beam Transport Effects for ECRIS
P. Spaedtke (GSI, Darmstadt)

TUP116 - Development of Very Small ECR Ion Source with Pulse Gas Valve
M. Ichikawa, H. Fujisawa, Y. Iwashita, T. Sugimoto, H. Tongu, M. Yamada (Kyoto ICR, Uji, Kyoto)

TUP117 - Development of Ultra-Low Emittance Injector for Future X-Ray FEL Oscillator
P.N. Ostroumov, K.-J. Kim (ANL, Argonne, Illinois), P. Piot (Northern Illinois University, DeKalb, Illinois)

TUP118 - Extraction From ECR and Recombination of Multiple-Charge State Heavy-Ion Beams in LEBT
P.N. Ostroumov, A. Barcikowski, A. Kondrashev, B. Mustapha, R.H. Scott, S.I. Sharamentov (ANL, Argonne, Illinois), N. Vinogradov (Northern Illinois University, DeKalb, Illinois)

TUP119 - Ramping Up the SNS Beam Power
M.P. Stockli, B. Han, S.N. Murray, T.R. Pennisi, R.F. Welton (ORNL, Oak Ridge, Tennessee)

TUP120 - EBIS Preinjector Construction Status
J.G. Alessi, D.S. Barton, E.N. Beebe, S. Bellavia, O. Gould, A. Kponou, R.F. Lambiase, E.T. Lessard, R. Lockey, V. LoDestro, M. Mapes, D.R. McCafferty, A. McNerney, M. Okamura, A. Pendzick, D. Phillips, A.I. Pikin, D. Raparia, J. Ritter, J. Scaduto, L. Snydstrup, M. Wilinski, A. Zaltsman (BNL, Upton, Long Island, New York), U. Ratzinger, A. Schempp (IAP, Frankfurt am Main)

Wednesday Oral Session, WE1
Lecture Theatre 08:30
Session Chair: Paolo Pierini

[08:30]
WE101 - Overview of Energy Recovery Linacs
G.A. Krafft (Jefferson Lab, Newport News, Virginia)
In the last decade, stimulated by the success of the energy recovered free electron lasers, many projects have been initiated exploring the applications and limitations of beam energy recovery in recirculated linear accelerators (linacs). In this talk the performance of many existing energy recovered linacs is briefly reviewed. Looking forward, potential applications of energy recovered linacs such as [1] recirculated linac light sources, [2] high energy beam electron cooling devices, and [3] electron beam sources for high energy colliders have been pursued with varying degrees of effort. The types of new technology that must be developed for applications, and more broadly, some of the open issues regarding this technology, are discussed in detail. The talk concludes with some thoughts on the future developments in this important, and expanding field.

Notice: Authored by Jefferson Science Associates, LLC under U.S. DOE Contract No. DE-AC05-06OR23177.

[09:00]
WE102 - High Average Current SRF Cavities
T. Furuya (KEK, Ibaraki)
Higher-order-mode (HOM) free superconducting (SC) single cell cavities were developed for the rf system of high luminosity storage ring colliders. Because of the successful results of these cavities under ampere-class beams, the components and technology of the SC cavities have immediately been applied to the middle sized storage rings upgrading the beam intensity by using a few SC cavities. Beside the storage ring rf, a SC based high intensity proton linac was commissioned for neutron physics. Recently, the feasibility study of energy recovery linacs has been carried at various laboratories aiming for the 4th generation light source. Status of these developments will be described.

[09:30]

WE103 - First Results from the ERL Prototype at Daresbury

D.J. Holder, Y.M. Saveliev, S.L. Smith (STFC/DL/ASTeC, Daresbury, Warrington, Cheshire)

The energy recovery linac prototype at Daresbury is now called ALICE (Accelerators and Lasers In Combined Experiments). This paper presents the results obtained in the past year, including the second (fourth) period of gun commissioning. Following the completion of gun commissioning in November 2007, the dedicated gun diagnostic line was removed and the electron gun attached to the booster cavity and hence the rest of the machine. The paper outlines some of the challenges experienced during the commissioning of both the photoinjector system and the superconducting cavities and presents the current status of the project as well as the very latest results from commissioning during the summer of 2008.

[09:50]

WE104 - First Tests of the Cornell University ERL Injector

B.M. Dunham (Cornell University, Ithaca, New York)

Cornell University is planning to build an Energy-Recovery Linac (ERL) X-ray facility. The very small electron-beam emittance would produce an X-ray source that is significantly better than any existing storage-ring based light source. One major difference between an ERL and a typical light source is that the final electron beam emittance, and thus the X-ray beam brightness, is determined by the electron injector rather than the storage ring. We are currently constructing and commissioning an injector for an ERL with the goal of demonstrating the low emittances and high beam power required. The injector is designed to accelerate up to 100 mA cw electron bunches of 77 pC/bunch with an energy of 5 MeV (33 mA at 15 MeV) using 1.3 GHz superconducting cavities. A full suite of diagnostics will allow a complete phase space characterization for comparison with simulations and with the requirements. We will describe the current status of the injector along with results, difficulties and challenges to date.

Work supported by the National Science Foundation under contract PHY 0131508

[10:10]

WE105 - RF Control of High Q_L Superconducting Cavities

C. Hovater (Jefferson Lab, Newport News, Virginia)

In the last 20 years the requirements for rf control has increased as the target use has broadened from electron/ion accelerators for Nuclear and Particle Physics to light sources such as Free Electron Lasers. The increasing requirement of cavity field control to meet the spectral and jitter performance specifications for light sources has led system designers to a more rigorous approach in designing the rf controls. Design attention must be applied not only to the hardware and control algorithms but also to the overall accelerating system to meet performance and cost requirements. As an example, cavity Q_L in Energy Recovery Linacs (ERL) must be optimized such that the rf controls can accommodate the lowest possible rf power given the background cavity microphonics. This paper presents the status and future directions of high Q_L superconducting rf control systems.

Authored by Jefferson Science Associates, LLC under U.S. DOE Contract No. DE-AC05-06OR23177.

Wednesday Oral Session, WE2
Lecture Theatre 11:00
Session Chair: Milorad Popovic

[11:00]

WE201 - RF Systems for CW SRF Linacs

S.A. Belomestnykh (CLASSE, Ithaca)

The talk will provide an overview of the latest developments in rf systems for cw operated SRF linacs, such as CEBAF (in particular, 12 GeV Upgrade), Cornell ERL injector, ELBE, and ERLP at Daresbury.

[11:20]

WE202 - Operational Experience with High Power Beams at the SNS Linac

J. Galambos (ORNL, Oak Ridge, Tennessee)

The latest operational experiences of the SNS 1 GeV superconducting H- linac will be presented as the beam power is increased and losses and beam halo become more important. The talk will include a comparison of the advantages and disadvantages of superconducting cavities. For example, issues arising from the use

of different sets of SC cavities at different times will be described, along with the operational consequences on emittance and halo development.

[11:40]
WE203 - Fermilab's Project X
S. Nagaitsev (Fermilab, Batavia, Illinois)
The present status and plans for Fermilab's Project X will be reviewed.

[12:00]
WE204 - IH-DTL Linac as a Compact Injector for a Heavy-Ion Medical Synchrotron
Y. Iwata, T. Fujisawa, S. H. Hojo, N. Miyahara, T. Murakami, M. Muramatsu, H. Ogawa, Y. S. Sakamoto, S. Yamada, K. Yamamoto (NIRS, Chiba-shi), T. Fujimoto, T. Takeuchi (AEC, Chiba), T. Mitsumoto, H. Tsutsui, T. Ueda, T. Watanabe (SHI, Tokyo)
An interdigital H-mode structure drift tube linac (IH-DTL) with alternating phase focusing (APF) has been developed downstream of a 4-vane type RFQ linac at the National Institute of Radiological Sciences as a compact injector for a heavy-ion medical synchrotron. The rf frequency of both linacs is 200 MHz, and the total length of the two linacs is less than 6 m. They can accelerate heavy ions having a charge to mass ratio of 1/3 up to 4 MeV/u. The accelerated current of $^{12}C^{4+}$ is as high as 380 electric micro Amperes, and beam transmission through the APF IH-DTL is better than 96%. This compact injector-linac scheme might give a possible solution for a compact cancer therapy facility with heavy-ion beams.

[12:20]
WE205 - Commissioning and Operation of the Injector Linacs for HIT and CNAO
B. Schlitt (GSI, Darmstadt)
The Heidelberg Ion-Beam Therapy Centre (HIT) is the first dedicated clinical synchrotron facility for cancer therapy using energetic proton and ion beams (C, He and O) in Europe. The accelerator consists of a 7 MeV/u, 217 MHz injector linac and of a 430 MeV/u synchrotron. The installation and commissioning of the linac has been performed gradually in three steps for the ion sources and the LEBT, for the 400 keV/u RFQ, and for the 20 MV IH-type drift tube linac. The initial commissioning of the linac was finished successfully in December 2006, the commissioning of the synchrotron and of the high-energy beam lines with beam was

finished for two fixed-beam treatment places in December 2007. Commissioning of the heavy-ion gantry is still going on. The results of the linac commissioning will be reported as well as the experience of more than one year of linac operation. To provide optimum conditions for patient treatment, an intensity upgrade programme has been initiated for the linac. A copy of the HIT linac is presently installed at the Centro Nazionale di Adroterapia Oncologica (CNAO) in Pavia, Italy. The status of the CNAO linac will be also reported.

Thursday Oral Session, TH1
Lecture Theatre 08:30
Session Chair: Roland Garoby

[08:30]
TH101 - Superconducting RF R&D Toward High Gradient
C.M. Ginsburg (Fermilab, Batavia, Illinois)
High-beta superconducting rf elliptical cavities are being developed in large numbers for several accelerator projects including the International Linear Collider (ILC). In recent years, the understanding of cavity performance limitations has improved significantly, leading to better than 40 MV/m in some cavities. However, further improvement is needed to reach reliably the 31.5 MV/m operating gradient proposed for the ILC Main Linac cavities. World-wide R&D on the cavity gradient frontier includes improved surface cleaning and smoothing treatments, development of alternative cavity shapes and materials, and novel cavity manufacturing techniques. Substantial progress has been made with diagnostic instrumentation to understand cavity performance limitations. Some highlights of the efforts in superconducting rf R&D toward achieving higher gradients in high-beta elliptical cavities are reviewed.

[09:00]
TH102 - SRF Development for Ion Acceleration
G. Olry (IPN, Orsay)
The talk will provide an overview of the SRF development toward the acceleration of light and heavy ions including QWRs, HWRs, spoke and CH cavities.

[09:30]
TH103 - Developing Facilities for SNS Cryomodule Performance Improvement
J. Mammosser (ORNL, Oak Ridge, Tennessee)
Superconducting rf cavity facilities are currently being developed at SNS aimed at addressing the limitations and availability of installed cavities and the direct support of the future power upgrade plans. Efforts are directed towards development of in situ repairs and processing techniques to increase available linac gradients. Procedures have been developed and implemented and the results will be presented for the repair

of four cryomodules in the last year. Cryomodule testing facilities are being developed to further understand the collective limitations of installed cavities and spare cryomodule production is underway to develop and fabricate two high beta and one medium beta cryomodules. The direction and status of SRF facilities will be presented.

SNS is managed by UT-Battelle, LLC, under contract DE-AC05-00OR22725 for the U.S. Department of Energy

[10:00]

TH104 - An Overview of Linac Ion Sources

R. Keller (LANL, Los Alamos, New Mexico)

For the purpose of this presentation, the term Linac is narrowed down to comprise rf machines that accelerate ion beams at duty factors between about 5% and continuous operation. This group of Linacs includes proton and H- machines as well as accelerators utilizing multi-charged heavy ions, mostly for nuclear physics applications. Main types of ion sources serving these Linacs include Electron Cyclotron Resonance (ECR) sources, filament and rf driven multi-cusp sources, Penning (PIG) sources and duoplasmatrons. This presentation does not strive to attain encyclopedic character but rather to highlight current trends in performance parameters, major lines of development and type-specific limitations and problems, with emphasis on ECR and multi-cusp sources. The main technical aspects being discussed are ion production and beam formation.

This work was supported by the US Department of Energy under Contract Number DE-AC52-06NA25396

Thursday Oral Session, TH2
Lecture Theatre 11:00
Session Chair: Alok Chakrabarti

[11:00]

TH201 - Charge State Boosters for Radioactive Ion Acceleration

F. Ames (TRIUMF, Vancouver)

For the post acceleration of radioactive ions produced at ISOL facilities the increase of the charge state is essential to reduce the A/q requirements of the accelerators. Many of those existing or proposed facilities are relying on the performance of charge state boosters of

EBIS or ECRIS type. Although, in principle both types of sources can be used in pulsed or continuous mode operation an EBIS is better suited for pulsed beams whereas an ECRIS is most efficient in a continuous mode. The present state of the art with respect to existing data of both sources will be presented and potential future developments will be discussed. Latest results from the on line commissioning of a PHOENIX ECRIS charge breeder at ISAC will be presented.

[11:20]

TH202 - Heavy Ion Linac Booster at IUAC, New Delhi

A. Roy (IUAC, New Delhi)

The first module of the booster superconducting linear accelerator, consisting of a total of three modules, each having 8 quarter wave coaxial line bulk Nb resonators, has been commissioned at IUAC. During initial operation of the first linac module, the energy gain was found to be much lower due to various problems which are now identified and solved. After acceleration through the linac module and subsequent re-bunching using a superconducting Rebuncher, a 158 MeV silicon beam having pulse width of 400 ps was delivered to conduct nuclear physics experiments. The other two linac cryostats and the required 16 resonators to be installed in those two cryostats are in the final stage of fabrication. Work has progressed on a high current injector that would act as an alternate source of heavy ions for the superconducting linac. The first element of the high current injector is a high Tc superconducting magnet ECR source (PKDELIS) which would be followed by a room temperature radio frequency quadrupole accelerator and drift tube linac cavities. Prototypes of the RFQ working at 48.5 MHz, and that of the DTL working at 97 MHz, have been fabricated and are undergoing tests.

[11:40]

TH203 - Beam Compression in Heavy-Ion Induction Linacs

P.A. Seidl, A. Anders, J.E. Coleman, J.-Y. Jung, M. Leitner, S.M. Lidia, B.G. Logan, P.K. Roy, W.L. Waldron, C. Wooton (LBNL, Berkeley, California), J.J. Barnard, R.H. Cohen, D.P. Grote, S.M. Lund (LLNL, Livermore, California), M. Dorf, E.P. Gilson (PPPL, Princeton, New Jersey), A.B. Sefkow (Sandia National Laboratories, Albuquerque, New Mexico), D.R. Welch (Voss Scientific, Albuquerque, New Mexico)

The Heavy-Ion Fusion Sciences Virtual National Laboratory is pursuing an approach to target heating experiments in the Warm Dense Matter regime, using space-charge-dominated ion beams that are simultaneously longitudinally bunched and transversely focused. Longitudinal beam compression by large factors has been demonstrated in the LBNL Neutralized Drift Compression Experiment (NDCX) experiment with controlled ramps and forced neutralization. The achieved peak beam current and energy can be used in experiments that generate plasmas of warm dense matter. Using an injected 30 mA K+ ion beam with initial kinetic energy 0.3 MeV, axial compression leading to ~100X current amplification and simultaneous radial focusing to beam radii of a few mm have led to encouraging energy deposition approaching the intensities required for eV-range target heating experiments. We discuss the status of several improvements to the experiment and associated beam diagnostics that are under development to reach the necessary higher beam intensities.

This work was supported by the Office of Fusion Energy Sciences, of the U.S. Department of Energy under Contract No. DE-AC02-05CH11231, DE-AC52-07NA27344, DE-AC02-76CH3073.

Thursday Oral Session, TH3
Lecture Theatre 13:40
Session Chair: Guoxi Pei

[13:40]

TH301 - Beam Dynamics Studies of the 8 GeV Linac at FNAL

P.N. Ostroumov (ANL, Argonne, Illinois)

The proposed 8 GeV proton driver (PD) linac at FNAL includes a front end up to ~420 MeV and a high energy section operating at 325 MHz and 1300 MHz respectively. A normal conducting RFQ and short H-type resonators are being developed for the initial acceleration of the H-minus or proton beam up to 10 MeV. From 10 MeV to ~420 MeV the voltage gain is provided by SC spoke-loaded cavities. In the high-energy section, the acceleration will be provided by the International Linear Collider (ILC)-style SC elliptical cell cavities. To employ the existing readily available klystrons, an rf power fan out from high-power klystrons to multiple cavities is being developed. The beam dynamics simulation code TRACK available in both serial and

parallel versions has been updated to include H-minus stripping due to all known mechanisms to predict the exact location of beam losses. An iterative procedure has been developed to interact with the transient beam loading model taking into account feedback and feed-forward systems applied for the rf distribution from one klystron to multiple cavities.

This work was supported by the U.S. Department of Energy, Office of Scince, under contracts number DE-AC02-06CH11357 and No. W-31-109-ENG-38.

[14:00]

TH302 - Transport Limits in Periodic Focusing Channels

S.M. Lund (LLNL, Livermore, California)

It has been empirically observed in both experiments and particle-in-cell simulations that space-charge-dominated beams suffer strong growth in emittance and particle losses in alternating gradient quadrupole transport channels when the undepressed phase advance increases beyond about 85 degrees per lattice period. Although this criterion has been used extensively in practical designs of strong focusing intense beam transport lattices, the origin of the limit has not been understood. We propose a mechanism for the transport limit resulting from strongly chaotic classes of halo particle resonances near the core of the beam that allow near-edge particles to rapidly increase in oscillation amplitude when the space-charge intensity and the flutter of the matched beam envelope are both sufficiently large. A core particle model is applied to parametrically analyze this process and the results are compared with extensive particle simulations.

[14:20]

TH303 - Towards a Model Driven Accelerator with Petascale Computing

B. Mustapha (ANL, Argonne, Illinois)

Accelerator simulations still do not provide everything designers and operators need to deploy a new facility with confidence. This is mainly because of limitations preventing realistic, fast-turnaround, end-to-end simulations of the beam from the source all the way through to a final interaction point and because of limitations in on-line monitoring that prevent a full characterization of the actual beam line. As a result, once a machine is built there can be a gap between the expected behavior of the machine and the actual behavior. This gap often corresponds to enormous work and significant

delays in commissioning a new machine. To address the shortcomings of the existing beam dynamics simulation codes, and to fulfill the requirements of future hadron and heavy-ion machines, a starting point for a realistic simulation tool is being developed at ANL that will support detailed design evaluation and also fast turnaround computation to support commissioning and operation of the facility. The proposed simulations will be performed on the fast growing computing facility at ANL with peta-scale capability.

This work was supported by the U.S. Department of Energy, Office of Nuclear Physics, under Contract No. DE-AC-02-06CH11357.

Thursday Poster Session, THP
Lecture Theatre 14:40
Carson Hall 15:40
Session Chair: Alberto Facco

THP001 - Nb-RRR Sheet Inspection by Means of Ultrasonic Microscopy
R. Grill (PLANSEE SE, Reutte)

THP002 - The 1.3 GHz Superconducting RF Program at TRIUMF
R.E. Laxdal, K. Fong, A. Grassellino, A.K. Mitra, I. Sekachev, V. Zvyagintsev (TRIUMF, Vancouver), R.S. Orr, W. Trischuk (University of Toronto, Toronto, Ontario)

THP003 - Production and Testing of Two 141 MHz Prototype Quarter Wave Cavities for ISAC-II
R.E. Laxdal, R.J. Dawson, K. Fong, A. Grassellino, M. Marchetto, A.K. Mitra, T.C. Ries, V. Zvyagintsev (TRIUMF, Vancouver), R. Edinger (PAVAC, Richmond, B.C.)

THP004 - Performance of the ISAC-II 141 MHz Solid State Amplifier
A.K. Mitra, I.V. Bylinskii, K. Fong, R.E. Laxdal, J. Lu, R. Shanks, V. Zvyagintsev (TRIUMF, Vancouver)

THP005 - Tests of Wire Sublimations Very Close to SPIRAL 2 Superconducting Cavity
R. Ferdinand, P. Robillard, J.L. Vignet (GANIL, Caen), D. Longuevergne, G. Olry, H. Saugnac, P. Szott (IPN, Orsay)

THP006 - 704 MHz High Power Coupler and Cavity Development for High Power Pulsed Proton Linacs
G. Devanz, J.-P. Charrier, S. Chel, M. Desmons, Y. Gasser, A. Hamdi, P. Hardy, J. Plouin, D. Roudier (CEA, Gif-sur-Yvette)

THP007 - Status of the Low Beta Cryomodules for the SPIRAL 2 LINAC
G. Devanz, P.-E. Bernaudin, P. Bosland, A. Perolat, C.G. Thomas-Madec (CEA, Gif-sur-Yvette), R. Ferdinand (GANIL, Caen), Y. Gomez-Martinez (LPSC, Grenoble)

THP008 - A Novel Frequency Tuning System Based on Movable Plunger for SPIRAL2 High-Beta Superconducting Quarter-Wave Resonator
D. Longuevergne, G. Martinet, G. Olry, H. Saugnac (IPN, Orsay)

THP009 - RF Cryogenic Tests on the "Qualifying" beta = 0.12 SPIRAL2 Cryomodule
H. Saugnac, C. Commeaux, C. Joly, J. Lesrel, D. Longuevergne, F. Lutton, G. Martinet, G. Olry (IPN, Orsay), R. Beunard, R. Ferdinand, M. Souli (GANIL, Caen)

THP010 - Influence of Hysteresis on Cavity Tuning
O. Kugeler, W. Anders, J. Knobloch, A. Neumann (BESSY GmbH, Berlin)

THP011 - Recent Developments and Future Perspectives of Superconducting CH-Cavities
H. Podlech, A. Bechtold, M. Busch, F. Dziuba, H. Klein, H. Liebermann, U. Ratzinger, R. Tiede, C. Zhang (IAP, Frankfurt am Main), G. Clemente (GSI, Darmstadt)

THP012 - Nondestructive Testing of Niobium Sheets for SRF Cavities Using Eddy-current and SQUID Flaw Detection
A. Brinkmann, W. Singer (DESY, Hamburg)

THP013 - Various Applications of Dry-Ice Cleaning in The Field of Accelerator Components at DESY
A. Brinkmann, D. Reschke, J. Ziegler (DESY, Hamburg)

THP014 - Recent Results of Nine-cell Superconducting Accelerating Structures for the European XFEL
L. Lilje, D. Reschke (DESY, Hamburg)

THP015 - Open 120C Bake in Argon Atmosphere: A Simplified Approach for Q-drop Removal
D. Reschke, J. Ziegler (DESY, Hamburg)

THP016 - Analysis of Quenches Using Temperature Mapping in 1.3 GHz SCRF Cavities at DESY
D. Reschke (DESY, Hamburg)

THP017 - Use of Piezo Actuator to Frequency and Phase Lock a Superconducting Quarter Wave Resonator
B.K. Sahu, G.K. Chowdhury, S. Ghosh, D. Kanjilal, D.S. Mathuria, R. Mehta, A. Pandey, P. Patra, A. Rai, A. Roy (IUAC, New Delhi)

THP018 - Successful Qualification of the Coaxial Blade Tuner
R. Paparella, A. Bosotti, C. Pagani, N. Panzeri (INFN/LASA, Segrate (MI)), J. Knobloch, O. Kugeler, A. Neumann (BESSY GmbH, Berlin), C. Albrecht, R. Lange, L. Lilje (DESY, Hamburg)

THP019 - Third Harmonic Superconducting Cavity Prototypes for the XFEL
P. Pierini, A. Bosotti, N. Panzeri, D. Sertore (INFN/LASA, Segrate (MI)), J. Iversen, W. Singer, E. Vogel (DESY, Hamburg), H.T. Edwards, M.H. Foley, E.R. Harms, D.V. Mitchell (Fermilab, Batavia, Illinois)

THP020 - High-Gradient SRF Efforts Toward ILC
Y. Morozumi (KEK, Ibaraki)

THP021 - Development of Inspection Systems for Superconducting Cavities
Y. Iwashita, Y. Tajima [on leave] (Kyoto ICR, Uji, Kyoto), H. Hayano, K. Watanabe (KEK, Ibaraki)

THP022 - SC Nb Sputtered QWRs for the REX-ISOLDE Accelerator at CERN: Prototype Design and Manufacturing
M. Pasini, S. Calatroni, L.M.A. Ferreira, D. Ramos, T. Tardy, F. Thierry, T. Trilhe (CERN, Geneva)

THP023 - Crab Cavities for Linear Colliders
G. Burt, P. K. Ambattu, R.G. Carter, A.C. Dexter, M.I. Tahir (Cockcroft Institute, Lancaster), A. Latina, D. Schulte (CERN, Geneva), L. Bellantoni, B. Chase, M. Church, T.N. Khabiboulline (Fermilab, Batavia, Illinois), C. Adolphsen, Z. Li, A. Seryi, L. Xiao (SLAC, Menlo Park, California), C.D. Beard, D.M. Dykes, P. Goudket, A. Kalinin, L. Ma, P.A. McIntosh (STFC/DL/ASTeC, Daresbury, Warrington, Cheshire), R.M. Jones (UMAN, Manchester)

THP024 - Initial Design Study on the Optimisation of Cavity Shape for the CLIC Crab Cavity
P. K. Ambattu, G. Burt, R.G. Carter, A.C. Dexter (Cockcroft Institute, Lancaster), P.A. McIntosh (STFC/DL/ASTeC, Daresbury, Warrington, Cheshire), R.M. Jones (UMAN, Manchester)

THP025 - Superconducting Quarter-Wave Resonators for the ATLAS Energy Upgrade
M.P. Kelly, J.D. Fuerst, S.M. Gerbick, M. Kedzie, K.W. Shepard (ANL, Argonne, Illinois)

THP026 - Surface Processing Facilities for Superconducting RF Cavities at ANL
M.P. Kelly, S.M. Gerbick (ANL, Argonne, Illinois), D.R. Olis, A.M. Rowe (Fermilab, Batavia, Illinois)

THP027 - Welding Helium Vessels to the 3.9 GHz Superconducting Third Harmonic Cavities
M.H. Foley, T.T. Arkan, H. Carter, H.T. Edwards, J. Grimm, E.R. Harms, T.N. Khabiboulline, D.V. Mitchell, D.R. Olis, T. Peterson, P.A. Pfund, N. Solyak, D.J. Watkins, M. Wong (Fermilab, Batavia, Illinois), G. Galasso (University of Udine, Udine)

THP028 - Status of 3.9 GHZ Superconducting RF Cavity Technology at Fermilab
E.R. Harms, T.T. Arkan, V.T. Bocean, H. Carter, H.T. Edwards, M.H. Foley, T.N. Khabiboulline, M. McGee, D.V. Mitchell, D.R. Olis, A.M. Rowe, N. Solyak (Fermilab, Batavia, Illinois)

THP029 - Performance of 3.9-GHZ Superconducting Cavities
E.R. Harms, H.T. Edwards, I.G. Gonin, A. Hocker, T.N. Khabiboulline, N. Solyak (Fermilab, Batavia, Illinois)

THP030 - High Gradient Test Results of 325 MHz Single Spoke Cavities at Fermilab
G. Apollinari, I.G. Gonin, T.N. Khabiboulline, G. Lanfranco, J.P. Ozelis, L. Ristori, G.V. Romanov, D.A. Sergatskov, R. L. Wagner, R.C. Webber (Fermilab, Batavia, Illinois), J.D. Fuerst, M.P. Kelly, K.W. Shepard (ANL, Argonne, Illinois)

THP031 - SC Crab Cavities for the LHC Upgrade
V.P. Yakovlev, I.G. Gonin, N. Solyak (Fermilab, Batavia, Illinois)

THP032 - Improved Input and HOM Couplers for a SC Acceleration Structure.
V.P. Yakovlev, I.G. Gonin, A. Lunin, N. Solyak (Fermilab, Batavia, Illinois)

THP033 - Superconducting Quarter-Wave Resonator Cavity and Cryomodule Development for a Heavy Ion Re-accelerator
W. Hartung, J. Bierwagen, S. Bricker, C. Compton, J. DeLauter, P. Glennon, M. Hodek, M. J. Johnson, F. Marti, P.S. Miller, D. Norton, J. Popielarski, D. Sanderson, L. Saxton, J.J. Wlodarczak, R.C. York (NSCL, East Lansing, Michigan), E. Zaplatin (FZJ, Julich), A. Facco (INFN/LNL, Legnaro, Padova)

THP034 - CW RF Systems of the Cornell ERL Injector
S.A. Belomestnykh, Z.A. Conway, J. Dobbins, R.P.K. Kaplan, M. Liepe, P. Quigley, J.J. Reilly, J.P. Sikora, C.R. Strohman, V. Veshcherevich (CLASSE, Ithaca)

THP035 - Multipactor in Minimum Electric Field Regions of Transmission Lines and Superconducting RF Cavities
S.A. Belomestnykh, V.D. Shemelin (CLASSE, Ithaca)

THP036 - Quench Detection in 9-Cell ILC Superconducting Cavities Using Second Sound in He-II
Z.A. Conway, D.L. Hartill, E.N. Smith (CLASSE, Ithaca), H. Padamsee (Cornell University, Ithaca, New York)

THP037 - RF Design of a Spoke Resonator for High Power Free-Electron Lasers
F.L. Krawczyk, D.C. Nguyen (LANL, Los Alamos, New Mexico), E.L. Wright (Beam-Wave Research, Inc., Union City), B. Rusnak (LLNL, Livermore, California),

S.J. Cooke (NRL, Washington, DC), T.I. Smith (Stanford University, Stanford, Californmia)

THP038 - A New SRF Cavity Shape with Minimized Surface Electric and Magnetic Fields for the ILC
Z. Li, C. Adolphsen (SLAC, Menlo Park, California)

THP039 - SRF Cavity Imperfection Studies Using Advanced Shape Determination Tools
V. Akcelik, K. Ko, L. Lee, Z. Li, C.-K. Ng, L. Xiao (SLAC, Menlo Park, California)

THP040 - A New TEM-Type Deflecting and Crabbing RF Structure
J.R. Delayen, H. Wang (Jefferson Lab, Newport News, Virginia)

THP041 - Analysis of Electronic Damping of Microphonics in Superconducting Cavities
J.R. Delayen (Jefferson Lab, Newport News, Virginia), S.U. De Silva (ODU, Norfolk, Virginia)

THP042 - High-Gradient SRF R&D for ILC at Jefferson Lab
R.L. Geng (Jefferson Lab, Newport News, Virginia)

THP043 - Preliminary Results from Multi-Cell Seamless Niobium Cavities
W. Singer, I. Jelezov, A. Matheisen, X. Singer (DESY, Hamburg), G. Ciovati, P. Kneisel, M. Morrone (Jefferson Lab, Newport News, Virginia)

THP044 - Coaxial Coupling Scheme for Fundamental and Higher Order Modes in Superconducting Cavities
J.S. Sekutowicz, P. Kneisel (Jefferson Lab, Newport News, Virginia), L. Xiao (SLAC, Menlo Park, California)

THP045 - Twisted Structures and Their Application as Accelerating Structures
J.L. Wilson, Y.W. Kang (ORNL, Oak Ridge, Tennessee), A.E. Fathy (University of Tennessee, Knoxville, Tennessee)

THP046 - Design of the 10 kV Slow Chopper for the SPIRAL2 Project
M. Di Giacomo (GANIL, Caen)

THP047 - Design of the MEBT Rebunchers for the SPIRAL2 Driver
J.F. Leyge, M. Di Giacomo, M. Michel (GANIL, Caen)

THP048 - RF Power Amplifiers for the SPIRAL2 Driver: Requirements and Status
M. Di Giacomo, B. Ducoudret (GANIL, Caen)

THP049 - Optimization of Spiral-Loaded Cavities Using the 3D Code OPERA/SOPRANO
M. Schuh (CERN, Geneva; GSI, Darmstadt; MPI-K, Heidelberg), C.P. Welsch (KIP, Heidelberg; MPI-K, Heidelberg; GSI, Darmstadt), K.-U. Kuehnel (MPI-K, Heidelberg)

THP050 - Cold Model Testing of Elliptical Prototype Copper Cavity
A.S. Dhavale, K.C. Mittal, A. Roy (BARC, Mumbai)

THP051 - Experimental Evaluation of External Q of the Elliptical Prototype Copper Cavity with Input Coupler
A.S. Dhavale, K.C. Mittal (BARC, Mumbai)

THP052 - Development of High-Pressure Chemical Etching Method as a Surface Treatment for High-Field Accelerating Structures Made of Copper
H. Tomizawa, H. Dewa [on leave], H. Hanaki [on leave], A. Mizuno [on leave], T. Taniuchi [on leave] (JASRI/SPring-8, Hyogo-ken)

THP053 - The Status of Nextef; The X-band Test Facility in KEK
S. Matsumoto, M. Akemoto, S. Fukuda, T. Higo, N. Kudoh, T. Shidara, K. Yokoyama, M. Yoshida (KEK, Ibaraki)

THP054 - Status of RF Sources in Super-Conducting RF Test Facility (STF) at KEK
S. Fukuda, M. Akemoto, H. Hayano, H. Honma, H. Katagiri, S. Kazakov, S. Matsumoto, T. Matsumoto, S. Michizono, T. Miura, H. Nakajima, K. Nakao, T. Shidara, T. Takenaka, Y. Yano, M. Yoshida (KEK, Ibaraki)

THP055 - Characteristics of Different Materials on High-Gradient Experiments
K. Yokoyama, S. Fukuda, Y. Higashi, T. Higo, N. Kudoh, S. Matsumoto, Y. Watanabe (KEK, Ibaraki)

THP056 - Improvement in the ACS Cavity Design for the J-PARC Linac Energy Upgrade
H. Ao, K. Hasegawa, K. Hirano, T. Morishita, A. Ueno (JAEA/LINAC, Ibaraki-ken), Y. Yamazaki (J-PARC, KEK&JAEA, Ibaraki-ken), H. Asano (JAEA/J-PARC, Tokai-Mura, Naka-Gun, Ibaraki-Ken), M. Ikegami, F. Naito (KEK, Ibaraki), V.V. Paramonov (RAS/INR, Moscow)

THP057 - Development of RF Cavities for the SHB System of the L-band Electron Linac at Osaka University
G. Isoyama, S. Kashiwagi, R. Kato, M. Morio, S. Suemine (ISIR, Osaka)

THP058 - Accelerating Structure for C-Band Electron Linear Accelerator Optimization
S.V. Kutsaev, A. Anisimov, N.P. Sobenin (MEPhI, Moscow), M. Ferderer, A.A. Krasnov, A.A. Zavadtsev (ScanTech, Atlanta, Georgia)

THP059 - The Cut Disk Structure Parameters for Medium Proton Energy Range
V.V. Paramonov (RAS/INR, Moscow)

THP060 - Room Temperature Accelerating Structure for Heavy Ion Linacs
V.V. Paramonov, V.A. Moiseev (RAS/INR, Moscow), I.V. Bylinskii (TRIUMF, Vancouver)

THP061 - High Power Test of a Low Group Velocity X-Band Accelerator Structure for CLIC
S. Doebert, A. Grudiev, G. Riddone, M. Taborelli, W. Wuensch, R. Zennaro (CERN, Geneva), S. Fukuda, Y. Higashi, T. Higo, T. T. Takatomi, K. Ueno, K. Yokoyama (KEK, Ibaraki), C. Adolphsen, V.A. Dolgashev, L. Laurent, J.R. Lewandowski, S.G. Tantawi, F. Wang, J.W. Wang (SLAC, Menlo Park, California)

THP062 - Design of an X-Band Accelerating Structure for the CLIC Main Linac
A. Grudiev, W. Wuensch (CERN, Geneva)

THP063 - A New Local Field Quantity Describing the High Gradient Limit of Accelerating Structures
A. Grudiev, W. Wuensch (CERN, Geneva)

THP064 - Development Status of the Pi-Mode Accelerating Structure (PIMS) for Linac4
M. Vretenar, P. Bourquin, R. De Morais Amaral, F. Gerigk, J.-M. Lacroix, G. Vandoni, R. Wegner (CERN, Geneva)

THP065 - Shunt Impedance Studies in the ISIS Linac
D.C. Plostinar (STFC/RAL/ASTeC, Chilton, Didcot, Oxon), A.P. Letchford (STFC/RAL/ISIS, Chilton, Didcot, Oxon)

THP066 - Breakdown in Pressurized RF Cavities
M. Popovic (Fermilab, Batavia, Illinois), J.M. Byrd, D. Li (LBNL, Berkeley, California), M. Alsharo'a, R.P. Johnson, R. Sah (Muons, Inc, Batavia), M. BastaniNejad (Old Dominion University, Norfolk, Virginia), D. Rose, C.H. Thoma, D.R. Welch (Voss Scientific, Albuquerque, New Mexico)

THP067 - Compact, Tunable RF Cavities
M. Popovic, C.M. Ankenbrandt, E. Griffin, A. Moretti, R.E. Tomlin (Fermilab, Batavia, Illinois), M. Alsharo'a, R.P. Johnson, S. Korenev (Muons, Inc, Batavia)

THP068 - High Power Test of HINS RT CH Cavities
G. Apollinari, T.N. Khabiboulline, R.L. Madrak, A. Moretti, L. Ristori, G.V. Romanov, J. Steimel, R.C. Webber, D. Wildman (Fermilab, Batavia, Illinois), W.M. Tam (IUCF, Bloomington, Indiana)

THP069 - Design and Test of the Triple-Harmonic Buncher for the NSCL Reaccelerator
Q. Zhao, V. Andreev, M. Doleans, F. Marti, J. Ottarson, J. J. Vincent, X. Wu, R.C. York (NSCL, East Lansing, Michigan)

THP070 - Surface-Loss Power Calculations for the LANSCE DTL
S.S. Kurennoy (LANL, Los Alamos, New Mexico)

THP071 - Efficient Low-Beta H-mode Accelerating Structures with PMQ Focusing
S.S. Kurennoy, J.F. O'Hara, L. Rybarcyk (LANL, Los Alamos, New Mexico)

THP072 - Performance of a 1.3 GHz Normal-Conducting 5-Cell SW Cavity
F. Wang, C. Adolphsen, J.W. Wang (SLAC, Menlo

Park, California)

THP073 - Progress in L-Band Power Distribution System R&D at SLAC
C.D. Nantista, C. Adolphsen, B.D. McKee, F. Wang (SLAC, Menlo Park, California)

THP074 - A New Accelerator Structure Concept: the Zipper Structure
C.D. Nantista (SLAC, Menlo Park, California)

THP075 - X-Band Traveling Wave RF Deflector Structures
J.W. Wang, S.G. Tantawi (SLAC, Menlo Park, California)

THP076 - SPIRAL2 10 kW CW RF Coupler Design and Test
Y. Gomez-Martinez, T. Cabanel, J. Giraud, D. Marchand, R. Micoud, F. Vezzu (LPSC, Grenoble)

THP077 - Studies on input couplers for superconducting cavities at LAL
H. Jenhani (LAL, Orsay)

THP078 - High Power RF Supplies for the FAIR Injector Linacs
W. Vinzenz, W. Barth, L. Groening, M. Hoerr, G. Schreiber (GSI, Darmstadt)

THP079 - Operation Experience with the FLASH RF Waveguide Distribution System
S. Choroba, F. Eints, T. Froelich, A. Gamp, T. Grevsmuehl, V.V. Katalev (DESY, Hamburg)

THP080 - Elimination of Parasitic Oscillations in RF Tubeamplifier for High Power Application
E. Feldmeier (HIT, Heidelberg)

THP081 - Development of all Solid State Bouncer Compensated Long Pulse Modulators for LEP 1 MW Klystrons to be Used for the LINAC4 Project at CERN
P. Shrivastava, J. Mulchandani, V.C. Sahni (RRCAT, Indore (M.P.)), F. Bordry, C. De Almeida Martins, C. Rossi (CERN, Geneva)

THP082 - Analysis of Behaviour of the 6 MW Klystron Modulator for the 10 MeV, 10 kW Industrial RF Electron Linac
A.R. Tillu (BARC, Mumbai), S. Chandan, K. Dixit, K.C. Mittal, V. Yadav (BARC-EBC, Mumbai), A.P. Bhagwat, S.Y. Kulkarni (SAMEER, Mumbai)

THP083 - Design of a Four Beam Electron Gun for a High Power S-Band Klystron
L.M. Joshi, A.K. Ghildiyal, D. Kant, O.S. Lamba, P.S. Nandi, S.C. Nangru, D. Pal, M.K. Verma (CEERI, Rajasthan)

THP084 - Solid State Klystron Modulators for FERMI@ELETTRA
G. D'Auria, P. Delgiusto, A. Franceschinis, G.C. Pappas, A. Turchet, L. Veljak (ELETTRA, Basovizza, Trieste)

THP085 - Cooling System of Klystron Modulator Power Supply for XFEL Project at SPring-8
C. Kondo (RIKEN Spring-8 Harima, Hyogo), T. Inagaki, T. Sakurai, T. Shintake, K. Shirasawa (RIKEN/SPring-8, Hyogo)

THP086 - Cold Cathode Electron Tube Toward Plenty Multi Beam Tube
M. Yoshida (KEK, Ibaraki)

THP087 - Quarter-Wave-Stub Resonant Coupler
D.A. Swenson (Linac Systems, Albuquerque, New Mexico)

THP088 - High Power 325 MHz Vector Modulators for the Fermilab High Intensity Neutrino Source (HINS)
R.L. Madrak, D. Wildman (Fermilab, Batavia, Illinois)

THP089 - High Power L-Band Fast Phase Shifter
I. Terechkine, T.N. Khabiboulline, N. Solyak (Fermilab, Batavia, Illinois)

THP090 - Marx Bank Technology for Accelerators and Colliders
J.A. Casey, F.O. Arntz, M.P.J. Gaudreau, M.K. Kempkes, I. Roth (Diversified Technologies, Inc., Bedford, Massachusetts)

THP093 - Power Coupler and Tuner Development for Superconducting Quarter-Wave Resonators
J.J. Wlodarczak, P. Glennon, W. Hartung, M. Hodek, M. J. Johnson, D. Norton, J. Popielarski (NSCL, East Lansing, Michigan)

THP094 - Leveraging the LEDA High Voltage Power Supply Systems for the LANSCE Refurbishment Project
J.T. Bradley III, D. Rees, W. Roybal, K.A. Young (LANL, Los Alamos, New Mexico)

THP095 - Progress Towards the LANSCE RF System Refurbishment
D. Rees, J.T. Bradley III, S. Kwon, J.T.M. Lyles, M.T. Lynch, M.S. Prokop, W. Reass, K.A. Young (LANL, Los Alamos, New Mexico)

THP096 - Next Generation IGBT Switch Plate Development for the SNS High Voltage Converter Modulator
M.A. Kemp, C. Burkhart, M.N. Nguyen (SLAC, Menlo Park, California), D.E. Anderson (ORNL, Oak Ridge, Tennessee)

THP097 - ILC Marx Modulator Development Program Status
C. Burkhart, T.G. Beukers, R.S. Larsen, M.N. Nguyen, J. Olsen, T. Tang (SLAC, Menlo Park, California)

THP098 - RF Vector Control for Efficient Fan-Out Power Distribution
Y.W. Kang (ORNL, Oak Ridge, Tennessee)

THP099 - SNS Superconducting Linac (SCL) Klystron to Cavity Mismatch Effects and Adjustment
M.P. McCarthy, M.T. Crofford, S.-H. Kim (ORNL, Oak Ridge, Tennessee)

THP100 - Self Tuning Reguator for ISAC 2 Superconducting RF Cavity Tuner Control
K. Fong, M.P. Laverty, Q. Zheng (TRIUMF, Vancouver)

THP101 - AM-PM Conversion Induced Instability in I/Q Feedback Control Loop
K. Fong, M.P. Laverty, Q. Zheng (TRIUMF, Vancouver)

THP102 - Evaluation of Fast ADCs for Direct Sampling RF Field Detection for the European XFEL and ILC
Z. Geng, S. Simrock (DESY, Hamburg)

THP103 - LLRF System Requirements Engineering for the European XFEL
S. Simrock, G. Ayvazyan, Z. Geng, M.K. Grecki (DESY, Hamburg), A. Bachtior (CRE, Wuppertal)

THP104 - Low Level RF and Timing System for XFEL/SPring-8
T. Ohshima, N. Hosoda, H. Maesaka, Y. Otake (RIKEN/SPring-8, Hyogo), K. Tamasaku (RIKEN Spring-8 Harima, Hyogo), M. Musha (University of electro-communications, Tokyo)

THP105 - LLRF Control System of the J-PARC LINAC
Z. Fang, S. Anami, S. Michizono, S. Yamaguchi (KEK, Ibaraki), H. Suzuki (JAEA, Ibaraki-ken), T. Kobayashi (JAEA/J-PARC, Tokai-Mura, Naka-Gun, Ibaraki-Ken)

THP106 - Application of FPGA to Low Level RF Measurement and Control
H. Katagiri, S. Fukuda, T. Matsumoto, S. Michizono, T. Miura, Y. Yano, M. Yoshida (KEK, Ibaraki)

THP107 - Performance of Digital Low-Level RF Control System with Four Intermediate Frequencies
T. Matsumoto, S. Fukuda, H. Katagiri, S. Michizono, T. Miura, Y. Yano (KEK, Ibaraki)

THP108 - Performance of the Digital llrf System for STF in KEK
S. Michizono, S. Fukuda, H. Katagiri, T. Matsumoto, T. Miura, Y. Yano (KEK, Ibaraki)

THP109 - Measurements of the Feedback-Instability by 8/9π and 7/9π modes at the KEK-STF
T. Miura, S. Fukuda, H. Katagiri, T. Matsumoto, S. Michizono, Y. Yano (KEK, Ibaraki)

THP110 - Pulse-by-Pulse Switching of Beam Loading Compensation in J-PARC Linac RF Control
T. Kobayashi (JAEA/J-PARC, Tokai-Mura, Naka-Gun, Ibaraki-Ken), H. Suzuki (JAEA, Ibaraki-ken), S. Anami, Z. Fang, S. Michizono, S. Yamaguchi (KEK, Ibaraki)

THP111 - LLRF Control System Using a Commercial Board
H.S. Kim, Y.-S. Cho, H.-J. Kwon, K.T. Seol (KAERI, Daejon)

THP112 - Numerical Simulation of the INR DTL A/P Control System
A.I. Kvasha (RAS/INR, Moscow)

THP113 - Optimal Coupler and Power Settings for Superconductive Linear Accelerators
J. Branlard, B. Chase, S. Nagaitsev, O.A. Nezhevenko, J. Reid (Fermilab, Batavia, Illinois)

THP114 - New LLRF System for Fermilab 201.25 MHz Linac
T.A. Butler, L.J. Allen, J. Branlard, B. Chase, E. Cullerton, P.W. Joireman, M.J. Kucera, V. Tupikov, P. Varghese (Fermilab, Batavia, Illinois)

THP115 - Cavity Gradient Optimization in Pulsed Linacs Using the Cavity Transient Response
G.I. Cancelo, A. Vignoni (Fermilab, Batavia, Illinois)

THP116 - Real Time RF Simulator and Control
G.I. Cancelo, K.R. Treptow, T.J. Zmuda (Fermilab, Batavia, Illinois), C. Armiento (University of Pisa and INFN, Pisa)

THP117 - Design and Evaluation of the Low-Level RF Electronics for the ILC Main LINAC
U. Mavric, B. Barnes, B. Chase, D.W. Klepec, V. Tupikov (Fermilab, Batavia, Illinois)

THP118 - A Femtosecond-Level Fiber-Optics Timing Distribution System Using Frequency-Offset Interferometry
J.W. Staples, J.M. Byrd, L.R. Doolittle, G. Huang, R.B. Wilcox (LBNL, Berkeley, California)

THP119 - LANSCE-R Low Level RF Control System
M.S. Prokop (LANL, Los Alamos, New Mexico)

THP120 - Concept Design Study of the HIE-ISOLDE Cryomodules at CERN
V. Parma, S. Calatroni, M. Modena, M. Pasini, T. Trilhe, G. Vandoni (CERN, Geneva), S.M. Pattalwar (STFC/DL/ASTeC, Daresbury, Warrington, Cheshire)

THP121 - Venting the Beam Line Vacuum of a Cold CEBAF Cryomodule
M. A. Drury, E. Daly, F. Humphry, J.P. Preble (Jefferson Lab, Newport News, Virginia)

THP122 - Overview of the First Five Refurbished CEBAF Cryomodules
M. A. Drury, E. Daly, G.K. Davis, J.F. Fischer, C. Grenoble, J. Hogan, F. Humphry, K. King, J.P. Preble (Jefferson Lab, Newport News, Virginia)

Friday Oral Session, FR1
Lecture Theatre 08:30
Session Chair: Hans Weise

[08:30]
FR101 - 8 GeV C-Band Accelerator Construction for XFEL/SPring-8
T. Inagaki (RIKEN/SPring-8, Hyogo)
The 8 GeV C-band electron linear accelerator is under construction at the SPring-8 site aiming at generating an FEL X-ray beam in 2010. C-band accelerator technology has been developed initially at KEK for the e+e- linear collider project, and employed at the XFEL project in Japan. Since C-band generates a high gradient acceleration field as high as 35 MV/m, the total length of the accelerator fits within 400 m, including the injector and three bunch compressors. C-band uses normal conducting rf technology, thus it runs in pulse mode at 60 Hz, which is well suited to XFEL operation and is less expensive. The talk will cover the current status of the XFEL project and hardware production.

[09:00]
FR102 - Commissioning of the LCLS Linac
H. Loos (SLAC, Menlo Park, California)
Construction of the Linac Coherent Light Source (LCLS) X-ray free electron laser at the Stanford Linear Accelerator Center (SLAC) is nearing completion. A new injector and upgrades to the existing accelerator were installed in two phases in 2006 and 2007. We report on the commissioning of the injector, the two new bunch compressors at 250 MeV and 4.3 GeV, and transverse and longitudinal beam diagnostics up to the end of the existing linac at 13.6 GeV. The commissioning of the new transfer line from the end of the linac through the undulator beam line to the main dump is scheduled to start in January 2009 and for the undulator magnets in March 2009 with first light to be expected by May 2009.

This work was supported by U.S. Department of Energy, Office of Basic Energy Sciences, under Contract DE-AC02-76SF00515

[09:30]

FR103 - Operation of FLASH as a FEL User Facility

K. Honkavaara (DESY, Hamburg)

FLASH, the FEL user facility at DESY, is operated with an electron beam energy up to 1 GeV corresponding to a photon wavelength down to 6.5 nm. The full year 2008 is dedicated to beam operation: about half of the time is scheduled for FEL users, and the rest for accelerator and FEL physics studies. Operational experience gathered at FLASH is very important not only for further improvements of the FLASH facility itself, but also for the European XFEL and for the ILC R&D effort. This talk reports our experience operating FLASH as a user facility. Failure statistics are included as well.

[09:50]

FR104 - Review of Advanced Laser Technologies for Photocathode High-Brightness Guns

H. Tomizawa (JASRI/SPring-8, Hyogo-ken)

I developed a 3-D pulse shaping system in UV as an ideal laser for yearlong stable photoinjector. At SPring-8, the laser's pulse-energy stability has been improved to 0.7~1.4% at the UV (263 nm) under the laser environmental control included humidity. In addition, the ideal spatial and temporal profiles of an UV-laser pulse are essential to suppress emittance growth in an rf gun. I apply a deformable mirror that automatically shapes the spatial profile with a feedback routine, based on a genetic algorithm, and a pulse stacking system consisting of three birefringence Alpha-BBO crystal rods for temporal shaping at the same time. The 3D shape of the laser pulse is spatially top-hat (flattop) and temporally a square stacked chirped pulse. Using a 3D-shaped laser pulse with diameter of 0.8 mm on the cathode and pulse duration of 10 ps (FWHM), we obtain a normalized emittance of 1.4 pi mm mrad with a beam energy of 26 MeV. To keep the mirror away from beam axis, I developed a new hollow laser incidence with an axicon final focusing. Furthermore, I am developing a laser-induced Schottky-effect-gated photocathode gun using Z-polarization of the laser source with the hollow incidence.

[10:10]

FR105 - Billion Particle Linac Simulations for Future Light Sources

J. Qiang, R.D. Ryne, M. Venturini, A. Zholents (LBNL, Berkeley, California)

In this paper, we will report on a billion macroparticle simulation of beam transport in a free electron laser (FEL) linac for future light source applications. The simulation includes a self-consistent calculation of 3D space-charge effects, short-range geometry wakefields, longitudinal coherent synchrotron radiation (CSR) wakefields, and detailed modeling of rf acceleration and focusing. We will discuss the needs and the challenges for such large-scale simulation. Application to the study of microbunching instability in the FEL linac will also be presented.

This work was supported by the Office of Science, U.S. Department of Energy under DOE contract number DE-AC03_76SF00098.

Friday Oral Session, FR2
Lecture Theatre 11:00
Session Chair: Paul Schmor

[11:00]

FR201 - The IFMIF 5 MW Linacs

A. Mosnier (CEA, Gif-sur-Yvette)

The International Fusion Materials Irradiation Facility (IFMIF) is based on two high power cw accelerator drivers, each delivering a 125 mA deuteron beam at 40 MeV to the common lithium target. The present design of the 5 MW IFMIF Linacs, as well as the description of the prototype accelerator to be built in Japan are presented: the injector including the 140 mA ion source and the magnetic focusing LEBT, the RFQ for the bunching and acceleration to 5 MeV, the MEBT for the proper injection into the Drift-Tube-Linac where the beam is accelerated to the final energy of 40 MeV. Recently, the Alvarez type DTL was replaced by a superconducting Half-Wave Resonator Linac to benefit from the advantages of the SRF technology, in particular the rf power reduction, plug power saving, ability to accelerate high intensity cw beams with high flexibility and reliability. Last, a HEBT section transports and tailors the beam as a flat rectangular profile on the flow-

ing Lithium target. The design and technology choices will be validated during the EVEDA phase, which includes the construction of one full-intensity deuteron linac, but at a lower energy (9 MeV) at Rokkasho Mura in Japan.

[11:20]

FR202 - Linacs for Future Muon Facilities

S.A. Bogacz (Jefferson Lab, Newport News, Virginia), R.P. Johnson (Muons, Inc, Batavia)

Neutrino Factories and Muon Colliders require rapid acceleration of short-lived muons to multi-GeV and TeV energies. A Recirculated Linear Accelerator (RLA) that uses a single Linac and teardrop return arcs (the so called 'Dogbone' RLA) can provide exceptionally fast and economical acceleration to the extent that the focusing range of the RLA quadrupoles allows each muon to pass several times through each high-gradient cavity. Since muons are generated as a tertiary beam they occupy large phase-space volume and the accelerator must provide very large transverse and longitudinal acceptances. The above requirements drive the design to low rf frequency. A new concept of rapidly changing the strength of the RLA focusing quadrupoles as the muons gain energy is being developed to increase the number of passes that each muon will make in the rf cavities, leading to greater cost effectiveness. We are developing the optics and technical requirements for RLA designs, using superconducting rf cavities capable of simultaneous acceleration of both μ+ and μ- species, with pulsed Linac quadrupoles to allow the maximum number of passes.

Supported in part by DOE STTR grant DE-FG02-05ER86253

[11:40]

FR203 - Neutrons and Photons: Probes of Condensed Matter

W.G. Stirling (ESRF, Grenoble)

Synchrotron X-rays and neutrons provide unique microscopic information on the structures and dynamics of condensed matter. These probes are essential tools for biologists, chemists, physicists and materials scientists and have become increasingly important in a remarkably wide range of disciplines, from palaeontology to medicine. The electron storage rings producing synchrotron radiation, and fission reactor or spallation neutron sources, are usually situated at major national

or international laboratories. Such central research facilities are exemplified by the two international laboratories in Grenoble, the European Synchrotron Radiation Facility and the Institut Laue-Langevin. After a discussion of the sources used to produce synchrotron radiation and neutron beams, some of the instrumentation and methods used in the investigation of materials will be described, with illustrative examples of recent research. Finally, some major X-ray and neutron sources under construction or at the planning stage will be described, including several where linac technology plays an important role (e.g. the XFEL at DESY and the SNS at ORNL).

[12:10]
FR204 - The Holy Grail of Particle Physics - The Higgs Boson
N.S. Lockyer (TRIUMF, Vancouver)
A major focus of the linac community is to develop technology in support of the ILC project. The science motivation for the ILC will be presented with reference to the particle physics programs at Fermilab and the LHC.

[12:40]
Closing Remarks